

Colorado

Water Supply Outlook Report

May 1st, 2024



In this picture - snow crystals known as surface hoar. These snow crystals form on cold clear nights as, what would otherwise be, overnight dew freezes and enlarges surface crystals. These formations glisten in the sun, yet rarely last long, as the sun's radiation quickly breaks down the newly formed elaborate feather like structures. This photo was taken on a morning in late March.

Photo By: Brian Dmonkos

REMINDER: We are soliciting field work photos from the field again this year. Each month we will pick one to grace the cover of this report! Please include information on where, when and of who/what the photo was taken.

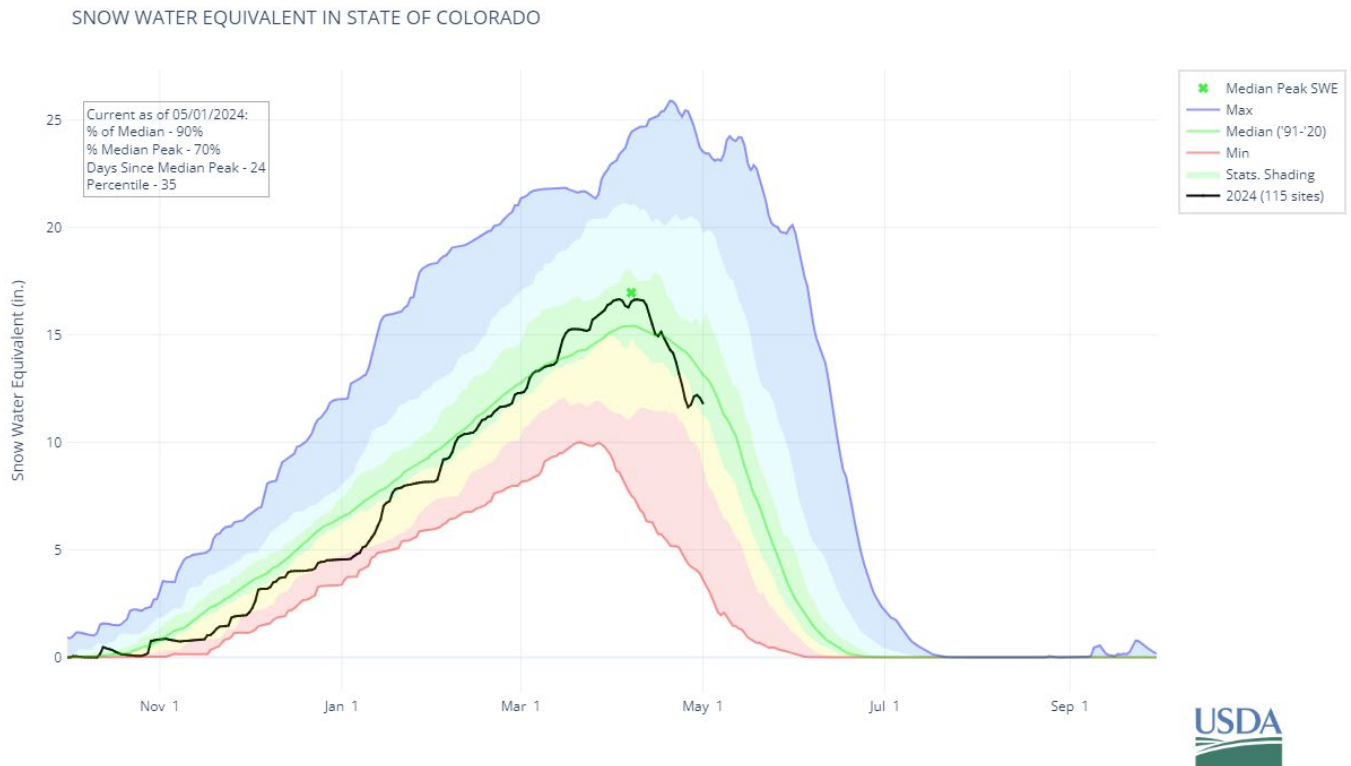
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Colorado Statewide Water Supply Conditions for May 1st

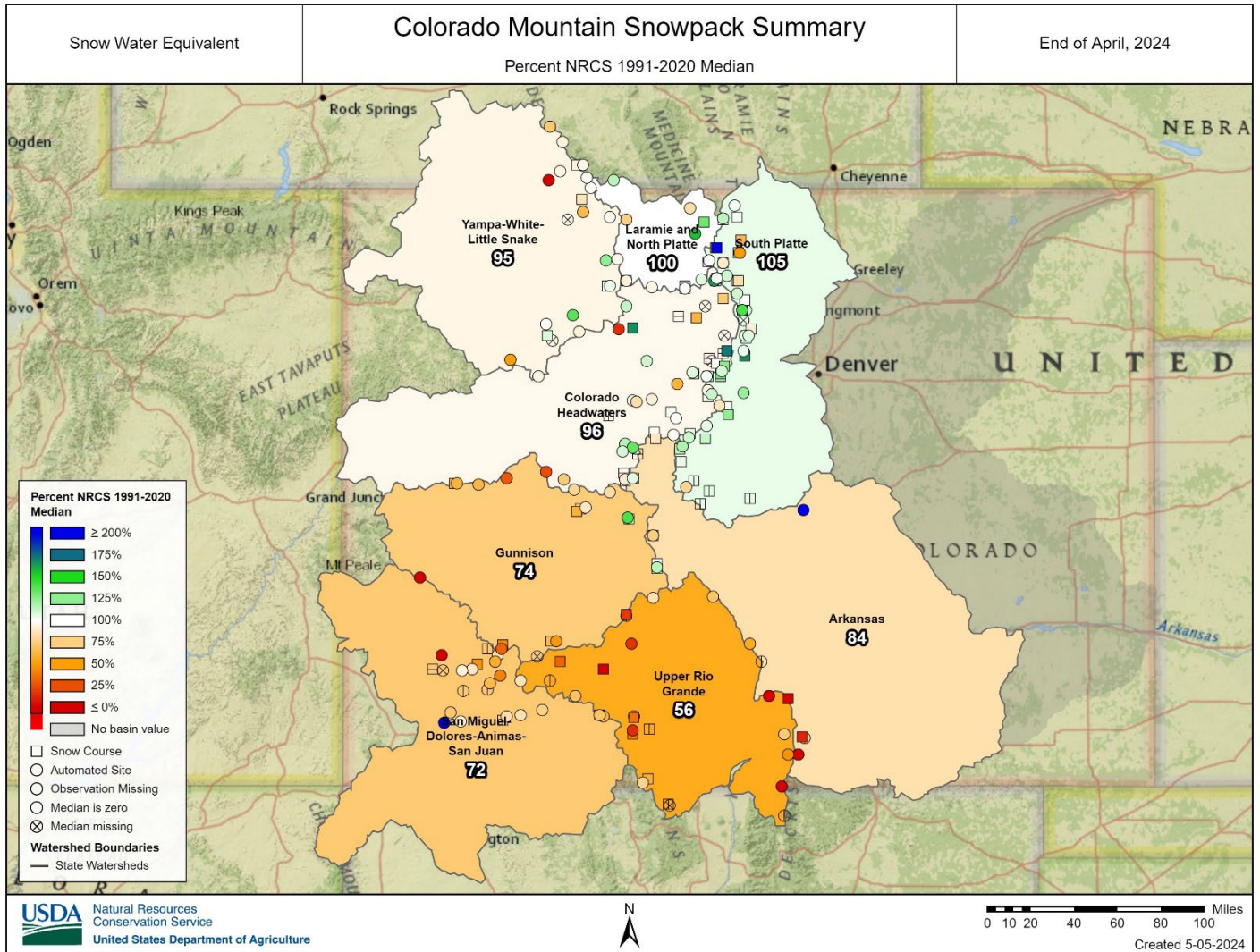
Summary



*For the above graph, snow water equivalent (SWE) values are calculated using daily SNOTEL data only. SWE numbers presented in the text are values from the first of the month and include manual Snow Course measurements along with SNOTEL data.

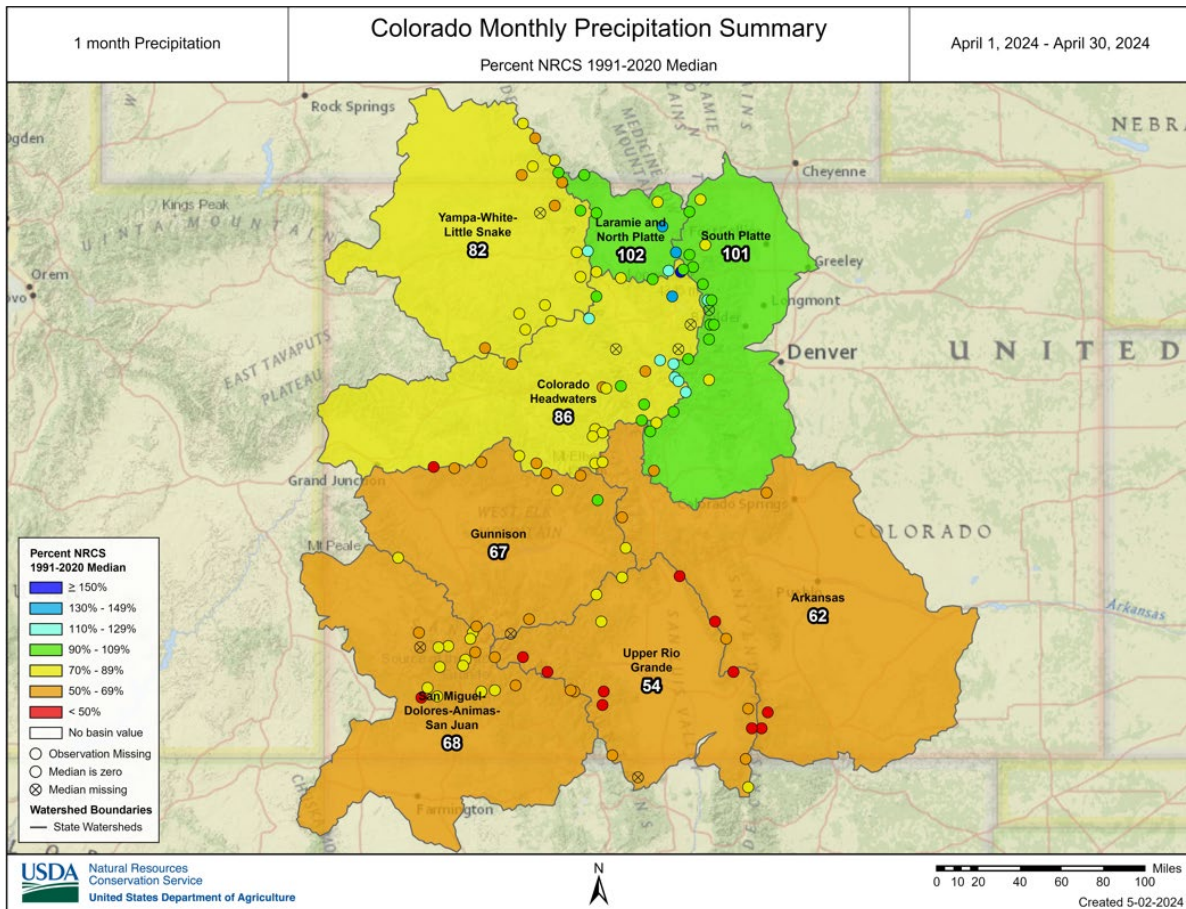
Warm and dry conditions were observed across the state during much of April which led to an active pattern of snowmelt across most river basins. Weak storm systems during early April brought cooler temperatures to most mountains across the state and slight precipitation. This period of cool temperature delayed snowmelt and caused statewide peak SWE to occur on April 9th at 98 percent of median. After peak snowpack was reached, conditions varied greatly across the state, where warm and dry conditions in the southern portions of the state, combined with [dust-on-snow](#), led to more rapid snowmelt than the northern portions. Powerful storm systems during mid-April and late April largely favored the northern river basins, which brought significant precipitation and cool temperatures, slowing snowmelt in those regions. Statewide, snowpack as of May 1st is 90 percent of median and ranges from 56 percent of median in the Upper Rio Grande River basin to 105 percent of median in the South Platte River basin. April precipitation ranged from 52 percent of median in the Upper Rio Grande River basin to 102 percent of median in the combined Laramie and North Platte River basin. Current streamflow volumetric forecasts follow similar trends as snowpack and precipitation and range from 72 percent of median for the combined San Miguel-Dolores-Animas-San Juan River basin to 106 percent of median for the South Platte and combined Yampa-White-Little Snake River basins. Notably, streamflow forecasts for the Upper Rio Grande River basin saw the greatest declines compared to last month, dropping from 96 percent of median on April 1st to 78 percent of median currently. Rapid snowmelt, below median April precipitation, and above median April streamflow have all contributed to reduced streamflow forecasts for the remainder of the runoff season for the Upper Rio Grande River basin. Conversely, current streamflow forecasts for the central and northern river basins are largely near median or above median. Reservoir storage has remained consistent across the state throughout the water year and current statewide reservoir storage is 100 percent of median. Please refer to individual basin sections in this report for more detailed water supply information.

Snowpack



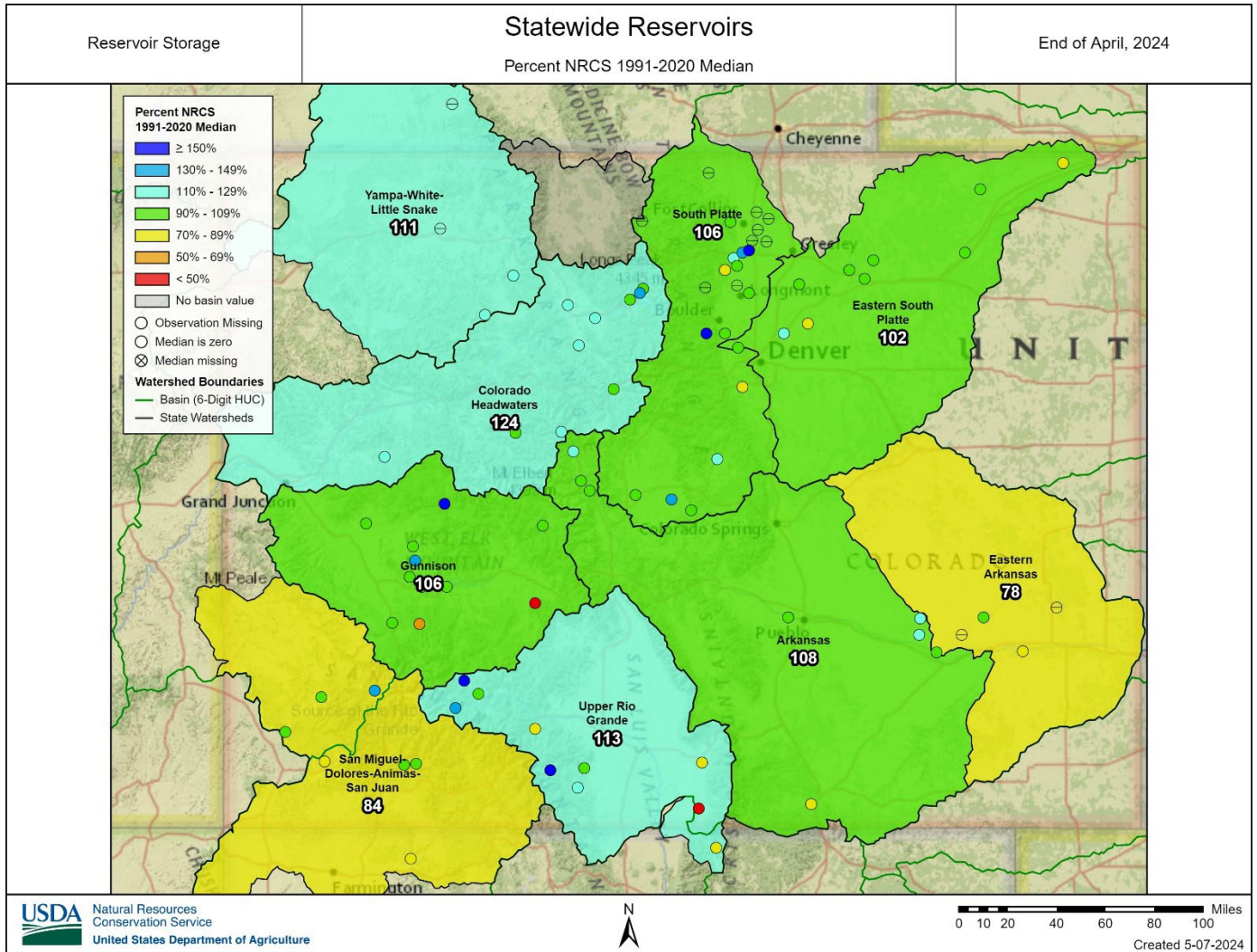
Snowpack for the month of April in water year 2024 showed on average lower percent of median as compared to both this time last month and this time last year. For snowpack in the month of April the Northern basins showed higher percent of median's ranging from 95 to 105 percent with the combined Yampa White Little Snake at 95, Colorado Headwaters at 96, the combined Laramie and North Platte at 100, and South Plate at 105. Whereas, the southern basins, showing lower percent medians state wide, ranged from 56 to 84 percent for the month of April with the Upper Rio Grande at 56, the combined San Miguel Dolores Animas San Juan at 72, Gunnison at 74, and Arkansas at 84.

Precipitation



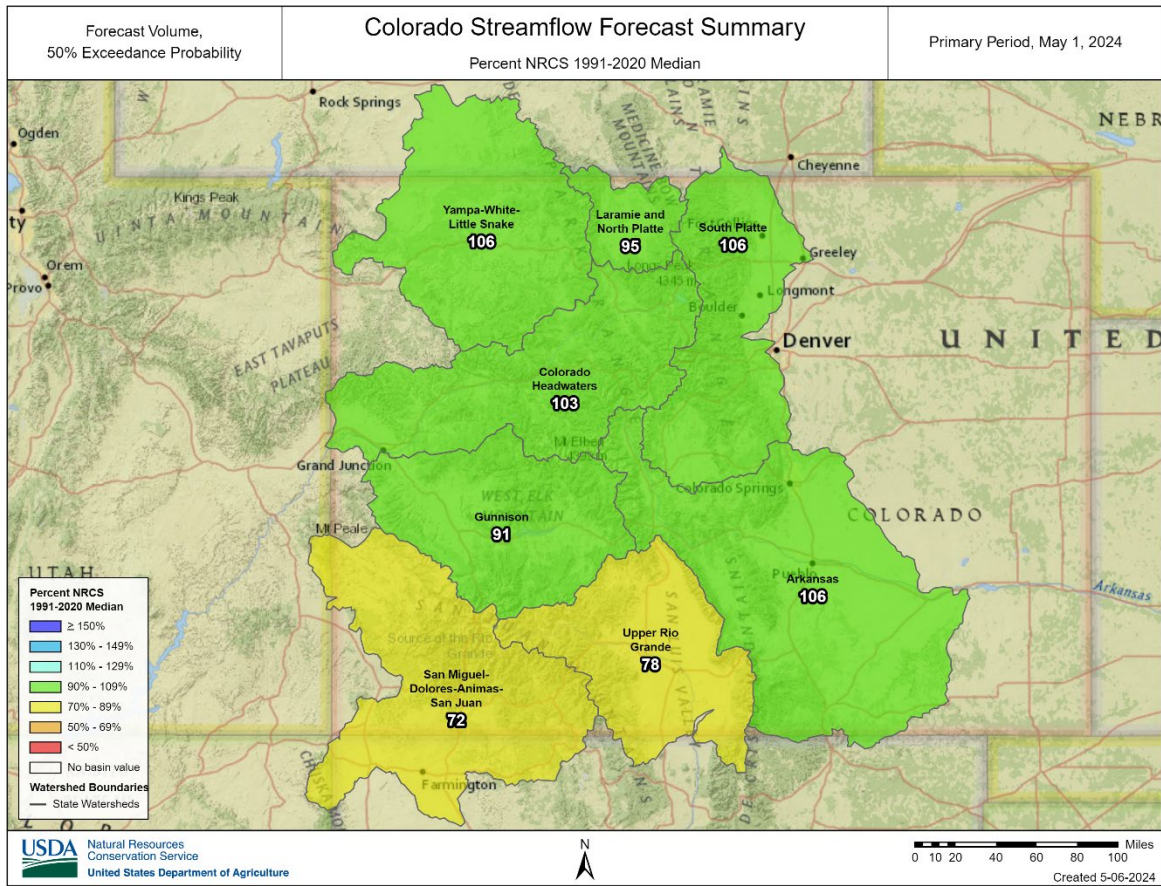
As of May 1st, water-year-to-date precipitation is 97 percent of median statewide, which is reduced from April 1st, when precipitation was at 103 percent of median. Precipitation in early April was notably light relative to typical statewide. On April 15th, a storm system brought heavy precipitation to the Front Range and Central mountains with an upsloping storm. Precipitation from this storm contributed to the South Platte river basin maintaining near-median precipitation (101 percent of median). Similarly, the combined Laramie and North Platte river basin maintained near-median precipitation at 102 percent. However, the majority of the state experienced moderately to significantly drier conditions during the month of April. Notably the river basins in the southern portion of the state were impacted by reduced precipitation with the Gunnison, combined San Miguel-Dolores-Animas-San Juan, Upper Rio Grande, and Arkansas at 67, 68, 54 and 62 percent of median respectively. The Colorado headwaters and combined Yampa-White-Little Snake were slightly affected by reduced precipitation with 86 and 82 percent of median monthly precipitation. On the whole, while the southern portion of the state experienced reduced precipitation in April, the water year-to-date precipitation metrics are somewhat more promising for the Arkansas and Gunnison river basins due to exceptional precipitation in previous months buffering the effects of an under-performing April (Arkansas river basin year to date 99 percent of median, Gunnison river basin 97 percent of median, despite April precipitation of 62 and 67 percent respectively). The overall decrease in precipitation for the southern portion of the state tracks with larger climate trends shifting from El Nino towards La Nina conditions in the coming months as forecasted by [NOAA](https://www.noaa.gov/).

Reservoir Storage



Statewide reservoir storage as of May 1st is 100 percent of median, with most basins remaining relatively similar as last month. Overall, river basins in the northern part of the state saw slight increases compared to last month and river basins in the southern portion of the state saw slight decreases compared to last month. The South Platte, Eastern South Platte, Arkansas, and Gunnison River basin are near normal at 106, 102, 108, and 106 percent of median, respectively. The combined Yampa-White-Little Snake, Upper Rio Grande, and Colorado Headwaters basins ended March with above normal storage at 111, 113, and 124 percent of median, respectively. Both the Eastern Arkansas and the combined San Miguel-Dolores-Animas-San Juan River basins are below median at 78 and 84 percent, respectively. There are many components, natural and artificial, that dictate a reservoir's storage volume and therefore also factor into the median values calculated for each basin. Compared to last year all river basins have improved, with the largest improvement being 29 percent in the Gunnison; this time last year it was 77 percent of median. Storage in the Upper Rio Grande River basin is highly variable, ranging from 34 percent of median at Sanchez Reservoir to 227 percent of median at Continental Reservoir.

Streamflow



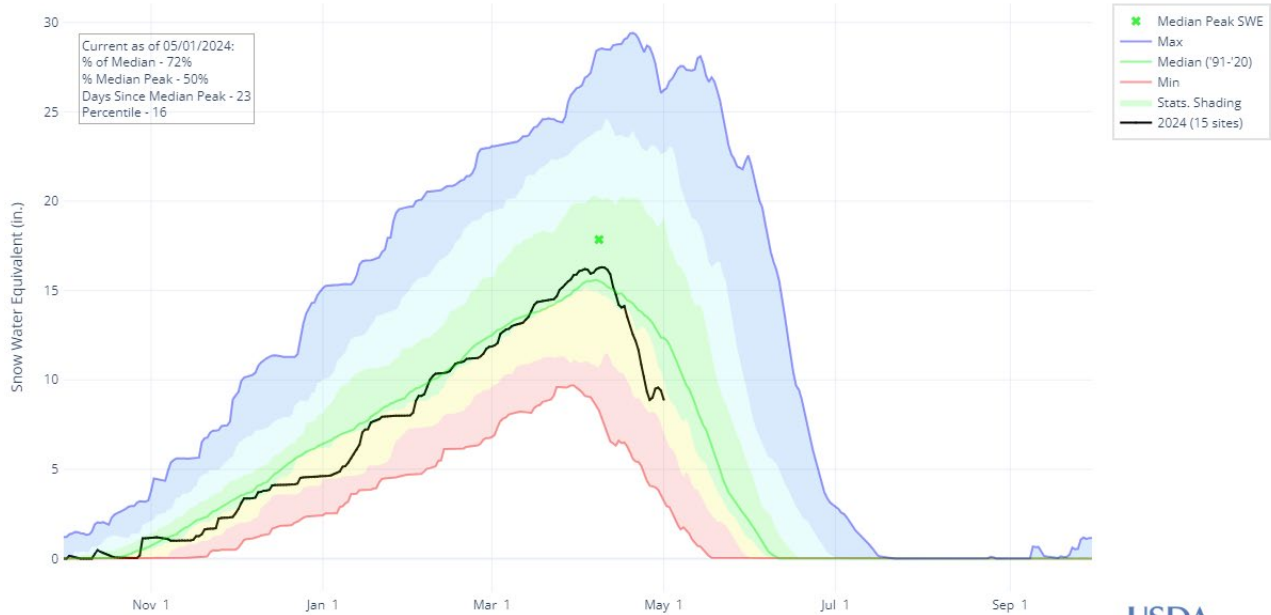
Statewide, the 50 percent exceedance streamflow volume forecasts stand at 95 percent of median, with 34 of 86 streamflow monitoring stations reporting volumes above the median. Streamflow projections continue to reflect the variances in snowpack and precipitation across different regions, with April’s weather patterns influencing streamflow forecasts, from decreased forecasts due to warmer temperatures and the onset of snowmelt, to near and above normal projections supported by late season precipitation. Overall, forecasts in the Upper Colorado region have decreased from April 1, ranging from 72 percent of median in the combined San Miguel-Dolores-Animas-San Juan (SMDASJ) to 106 percent of median in the combined Yampa-White-Little Snake basins. Navajo Reservoir inflow in the Upper San Juan sub-basin is forecasting 67 percent of median at 320 cfs. The Upper Rio Grande is anticipating 77 percent of median streamflows. Notably, the Rio Grande near Del Norte and Rio Grande at Thirty Mile Bridge are forecasting streamflow volumes at 75 and 81 percent of median, respectively. These stations, historically monitor higher flows compared to other locations in the basin. Looking north, late season precipitation favored the Laramie, North Platte and South Platte basins which are near and above median at 95 and 106 percent, respectively. All twelve stations in the South Platte are predicting near to above median flows. The Cache La Poudre River at Canyon Mouth station is forecasting 107 percent of median at 225 cfs. The Colorado Headwaters showed the least amount of variance compared to April 1 forecasts and is anticipating 103 percent of median streamflows. Despite the past peak in SWE, ongoing weather patterns into May and June can still influence streamflows. Late spring rains, although not as impactful as winter snowpack, can help sustain streamflows and top up reservoirs levels before the drier summer months set in.

GUNNISON RIVER BASIN

May 1st, 2024

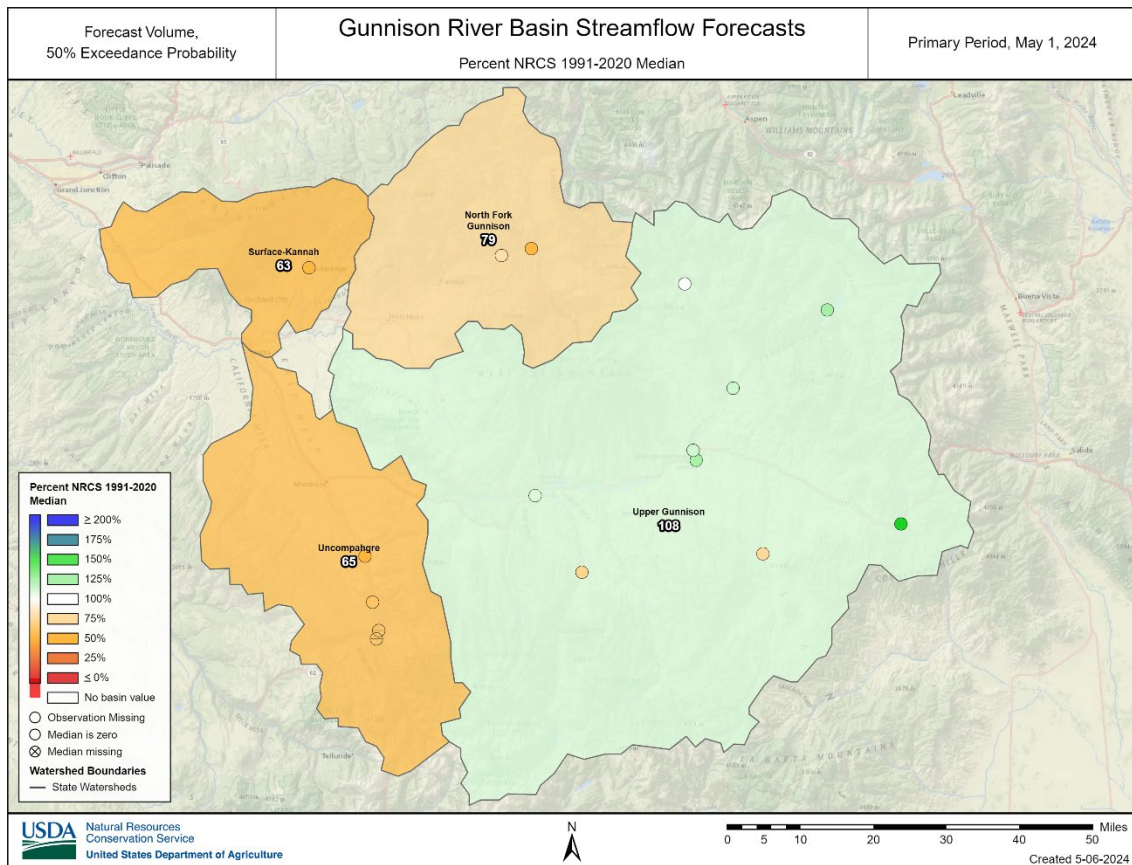
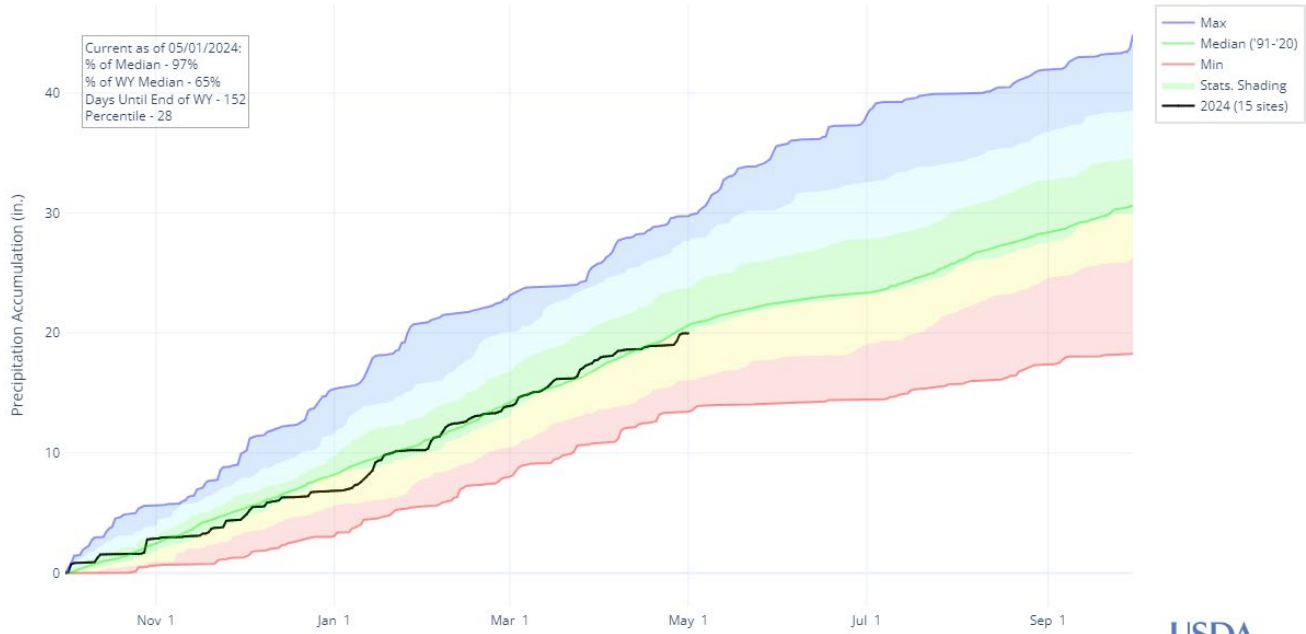
Snowpack in the Gunnison River basin is below normal at 74% of median. Precipitation for April was 67% of median which brings water year-to-date precipitation to 97% of median. Reservoir storage at the end of April was 106% of median compared to 77% last year. Current streamflow forecasts range from 59% of median at Surface Creek at Cedaredge to 154% of median at Tomichi Creek at Sargents.

SNOW WATER EQUIVALENT IN GUNNISON

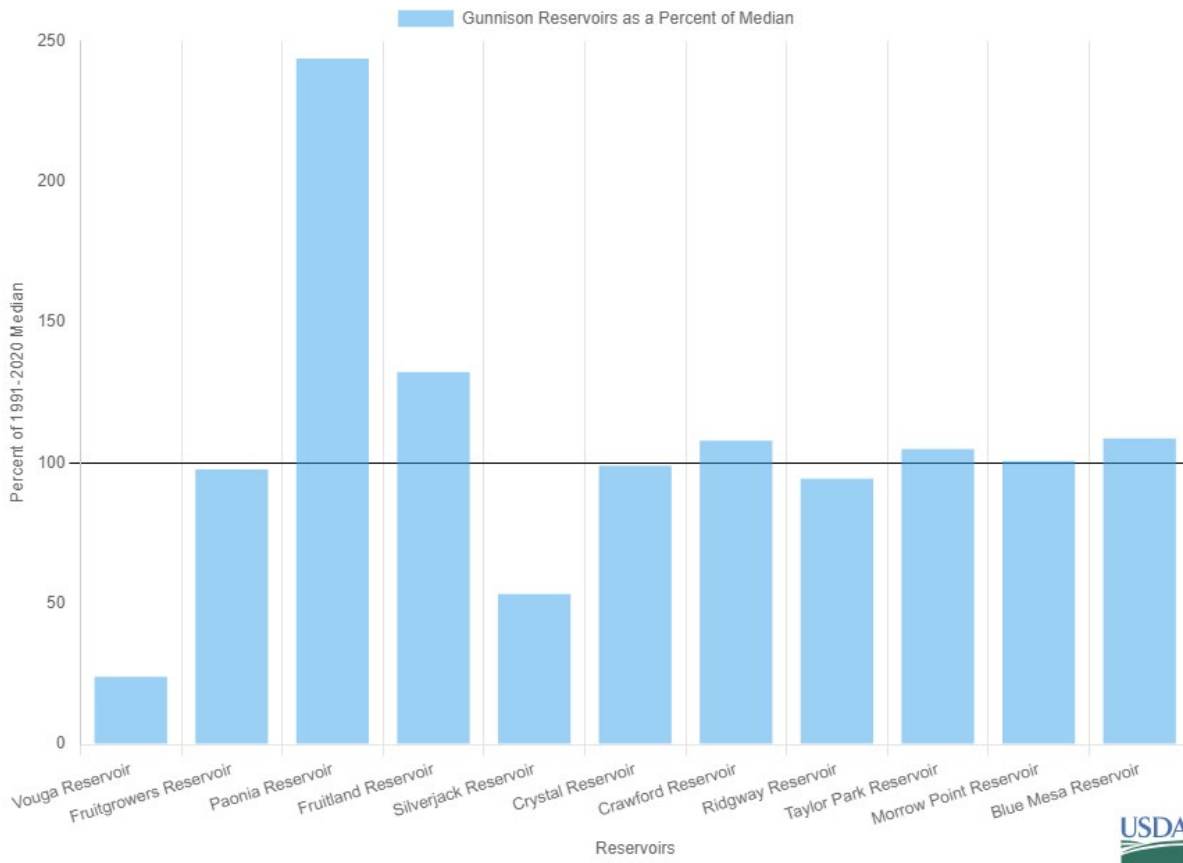


*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN GUNNISON



Gunnison Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

Gunnison Sub-Basin Snow Data

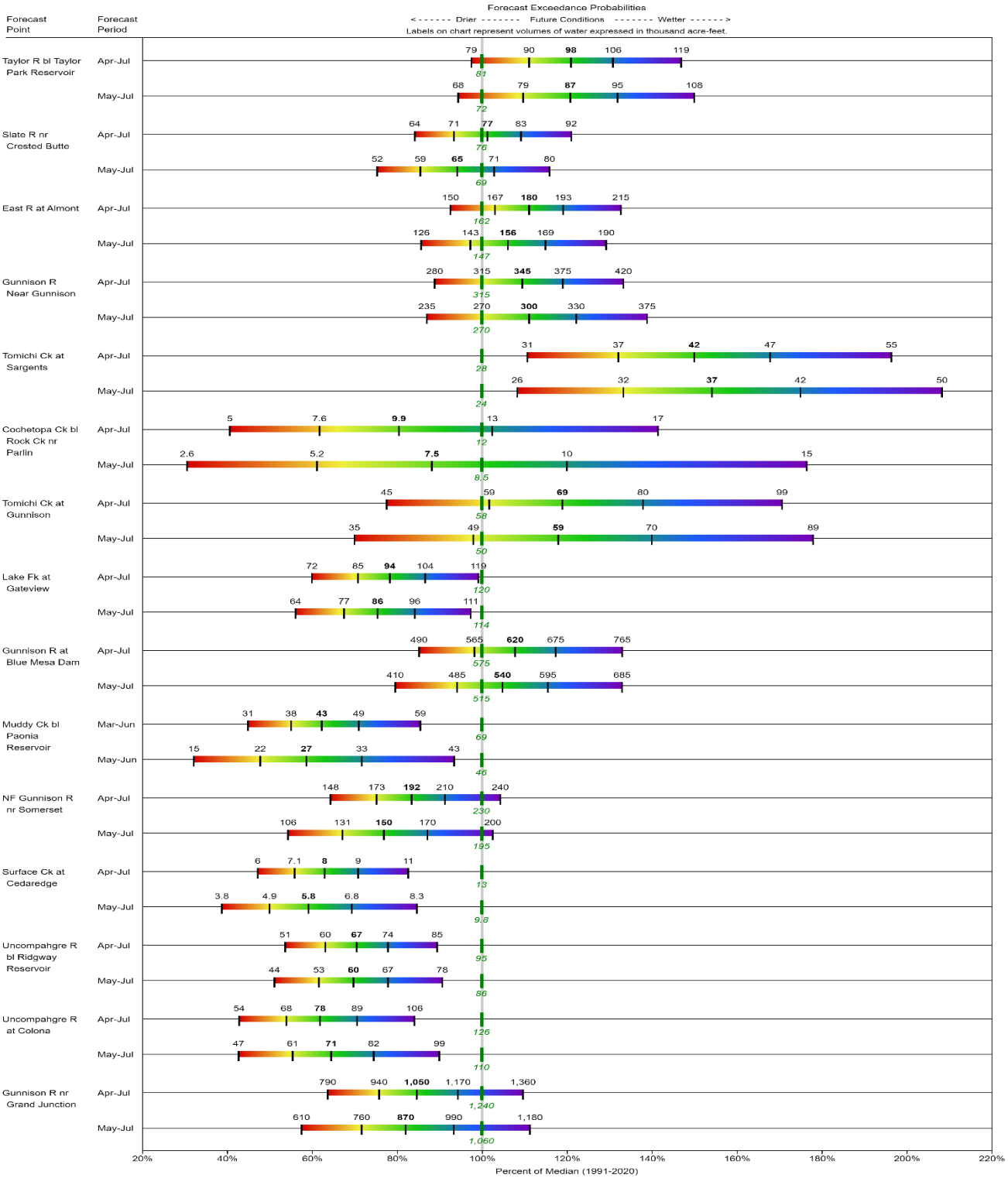
	# of Sites	% Median	Last Year % Median
Upper Gunnison	14.0	87.8	154.3
North Fork Gunnison	3.0	62.6	199.1
Uncompahgre Plateau	1.0	0.0	1472.7
Uncompahgre	3.0	63.7	157.5
Surface-Kannah	3.0	62.1	178.7

Reservoir Storage End of April 2024

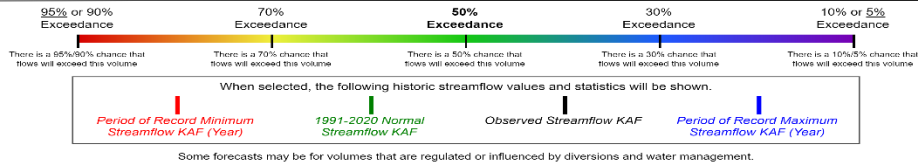
Gunnison Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Crystal Reservoir	8.81	9.05	8.9	99.0
Fruitland Reservoir	7.14	4.91	5.4	132.2
Morrow Point Reservoir	111.37	110.28	110.6	100.7
Vouga Reservoir	0.22	0.67	0.9	24.4
Crawford Reservoir	12.19	8.59	11.3	107.9
Blue Mesa Reservoir	550.25	358.41	506.3	108.7
Taylor Park Reservoir	73.19	61.21	69.8	104.9
Paonia Reservoir	9.75	2.69	4.0	243.8
Fruitgrowers Reservoir	3.42	3.23	3.5	97.7
Silverjack Reservoir	3.85	1.76	7.2	53.5
Ridgway Reservoir	63.7	54.82	67.5	94.4

GUNNISON
Water Supply Forecasts
May 1, 2024



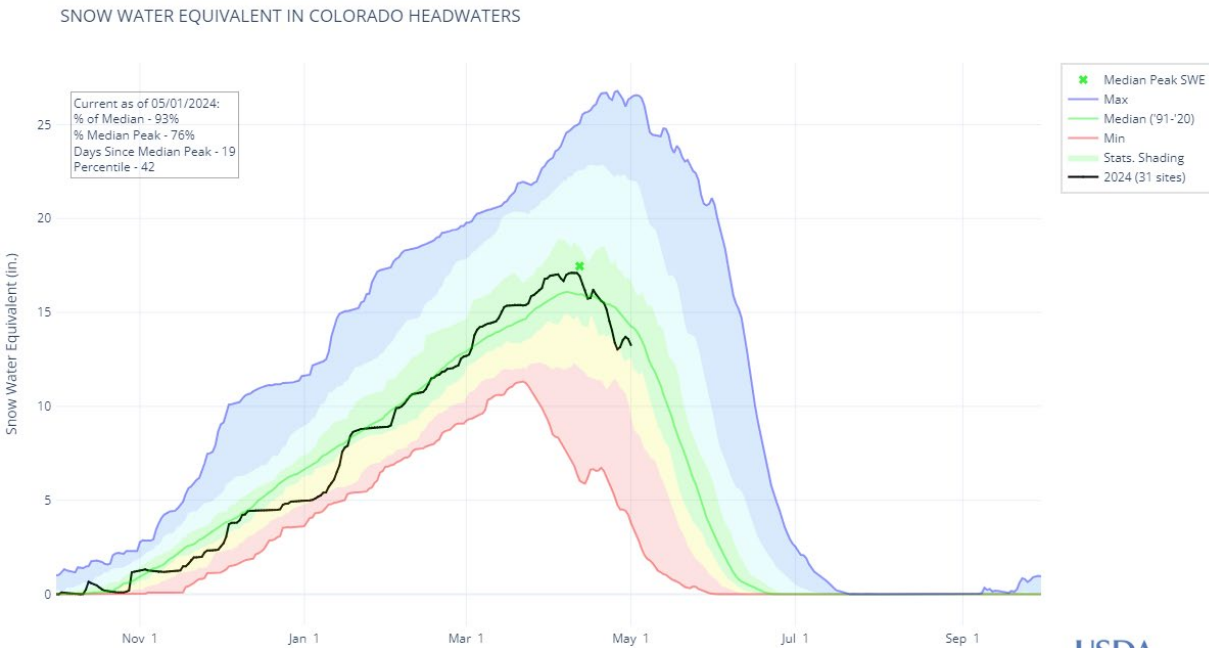
Legend



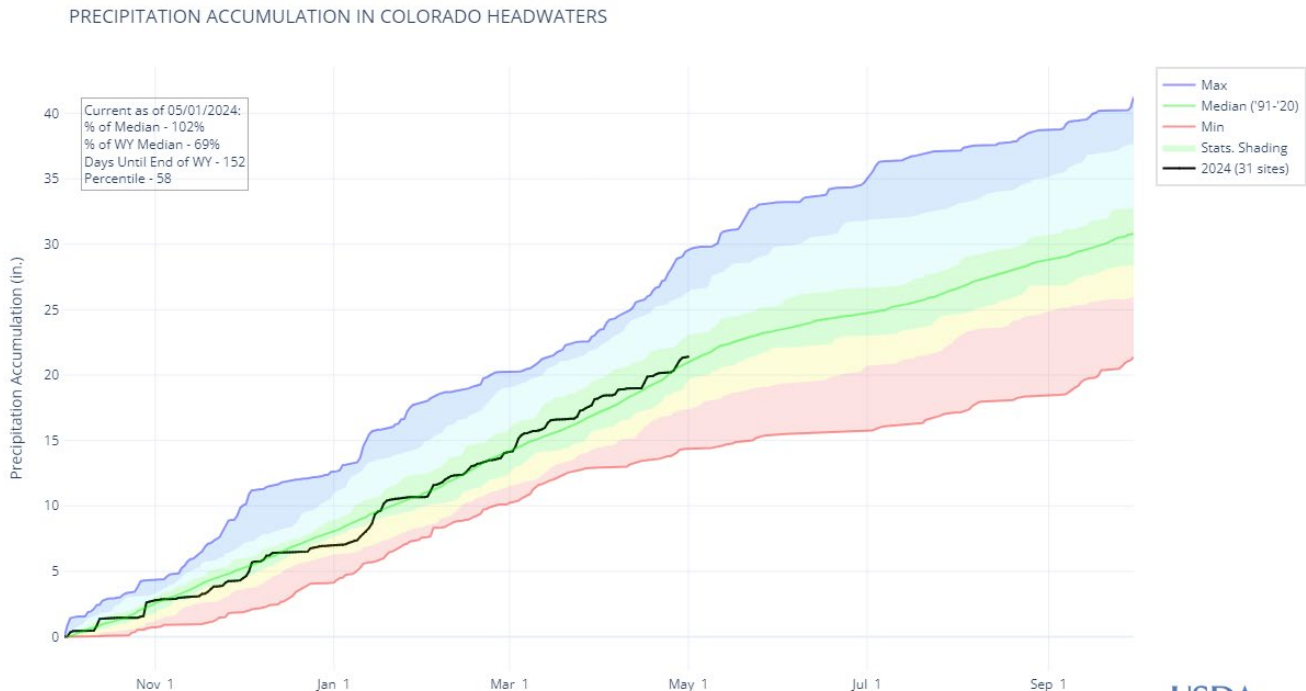
COLORADO HEADWATERS RIVER BASIN

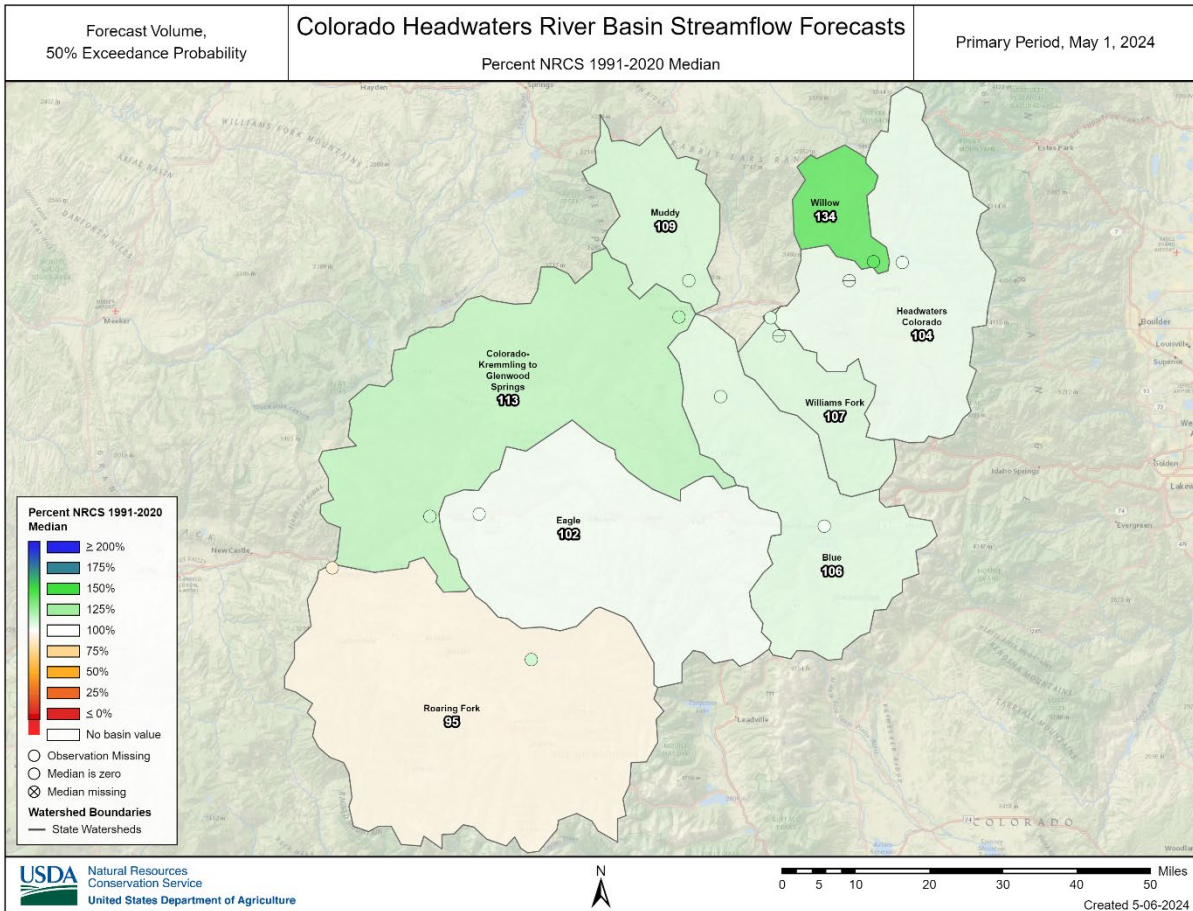
May 1st, 2024

Snowpack in the Colorado River basin is just below normal at 96% of median. Precipitation for April was 86% of median which brings water year-to-date precipitation to 102% of median. Reservoir storage at the end of April was 124% of median compared to 101% last year. Current streamflow forecasts range from 91% of median at the Roaring Fork at Glenwood Springs to 111% of median at Colorado River near Kremmling.

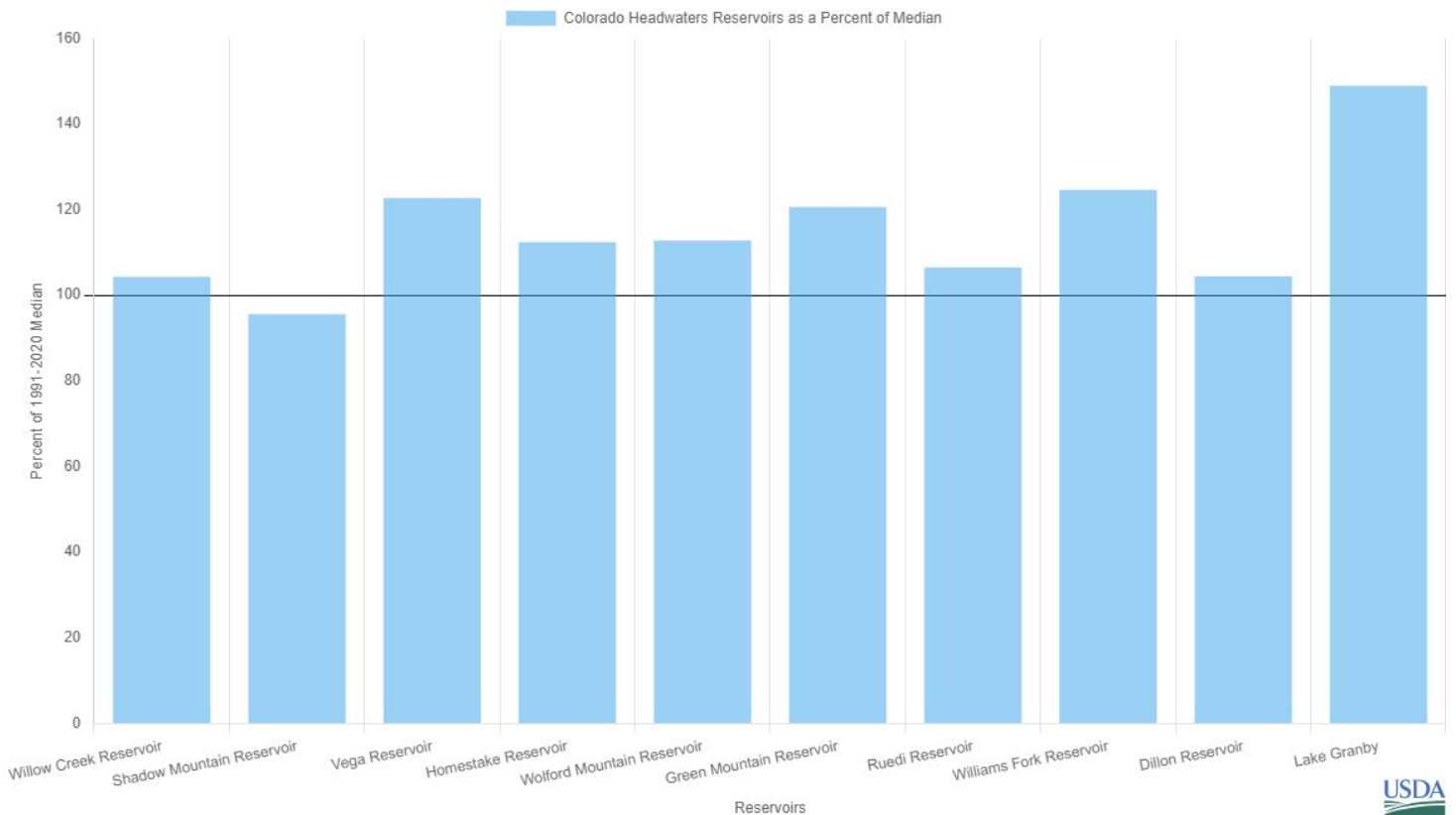


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Colorado Headwaters Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

Colorado Headwaters Sub-Basin Snow Data

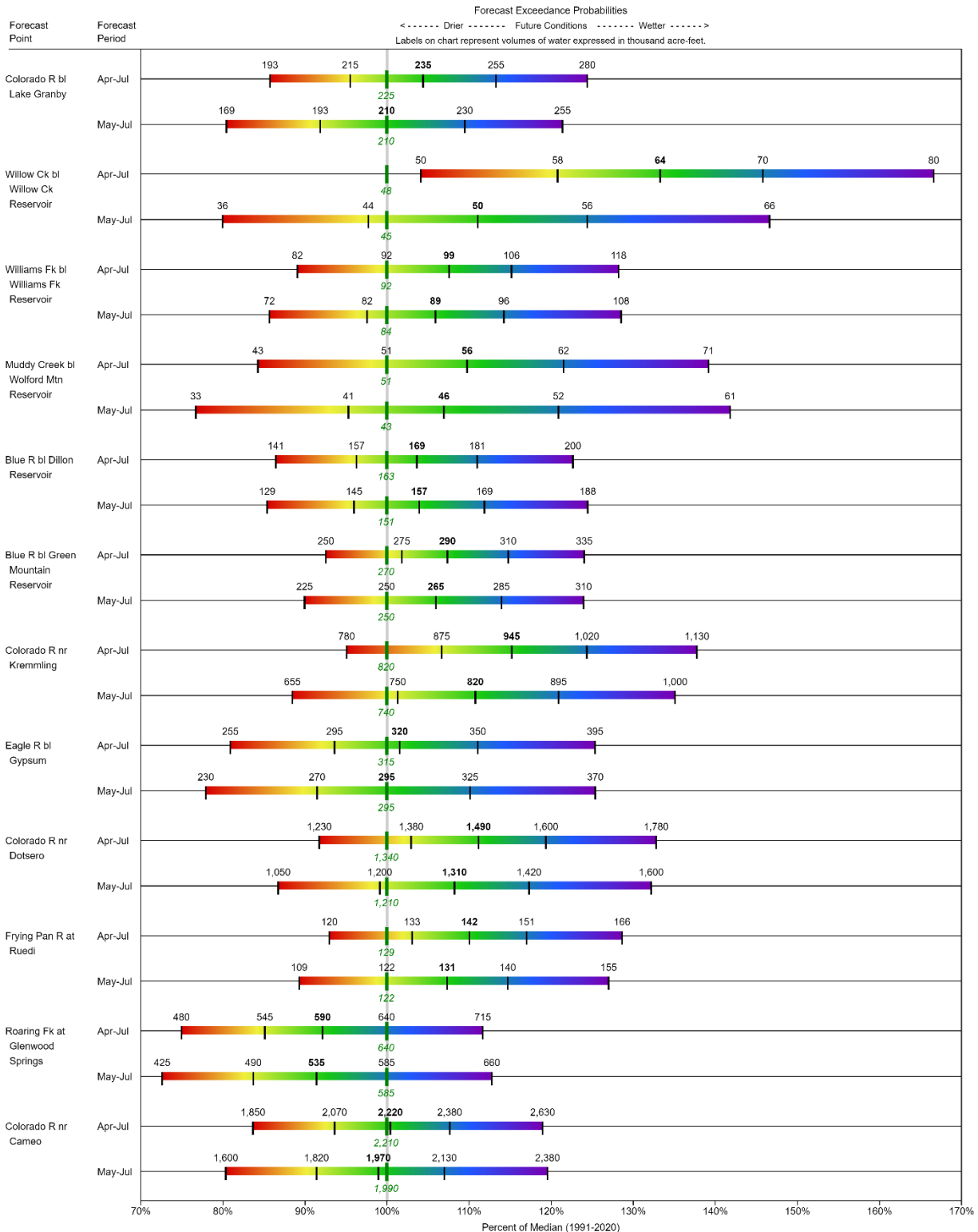
	# of Sites	% Median	Last Year % Median
Headwaters Colorado	9.0	113.7	103.1
Roaring Fork	9.0	90.6	127.2
Colorado-Kremmling to Glenwood Springs	5.0	100.4	151.2
Eagle	7.0	95.6	106.6
Blue	6.0	101.4	105.5
Plateau	4.0	58.6	191.7
Williams Fork	4.0	107.3	85.6
Muddy	4.0	102.6	148.1
Willow	3.0	97.0	141.2
Troublesome	1.0	94.8	123.3

Reservoir Storage End of April 2024

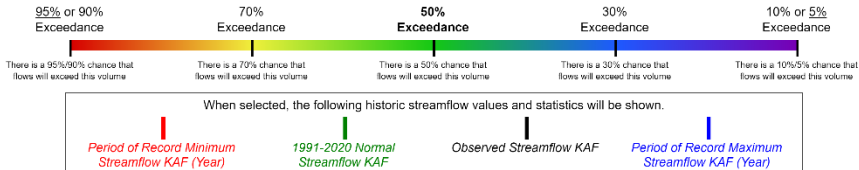
Colorado Headwaters Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Wolford Mountain Reservoir	57.32	39.56	50.8	112.8
Williams Fork Reservoir	85.71	45.95	68.8	124.6
Lake Granby	401.4	315.18	269.5	148.9
Shadow Mountain Reservoir	16.45	16.4	17.2	95.6
Dillon Reservoir	214.72	194.94	205.6	104.4
Vega Reservoir	21.47	13.81	17.5	122.7
Willow Creek Reservoir	6.67	6.7	6.4	104.2
Ruedi Reservoir	69.9	66.28	65.6	106.6
Homestake Reservoir	19.89	11.65	17.7	112.4
Green Mountain Reservoir	73.09	73.52	60.6	120.6

COLORADO HEADWATERS
Water Supply Forecasts
 May 1, 2024



Legend

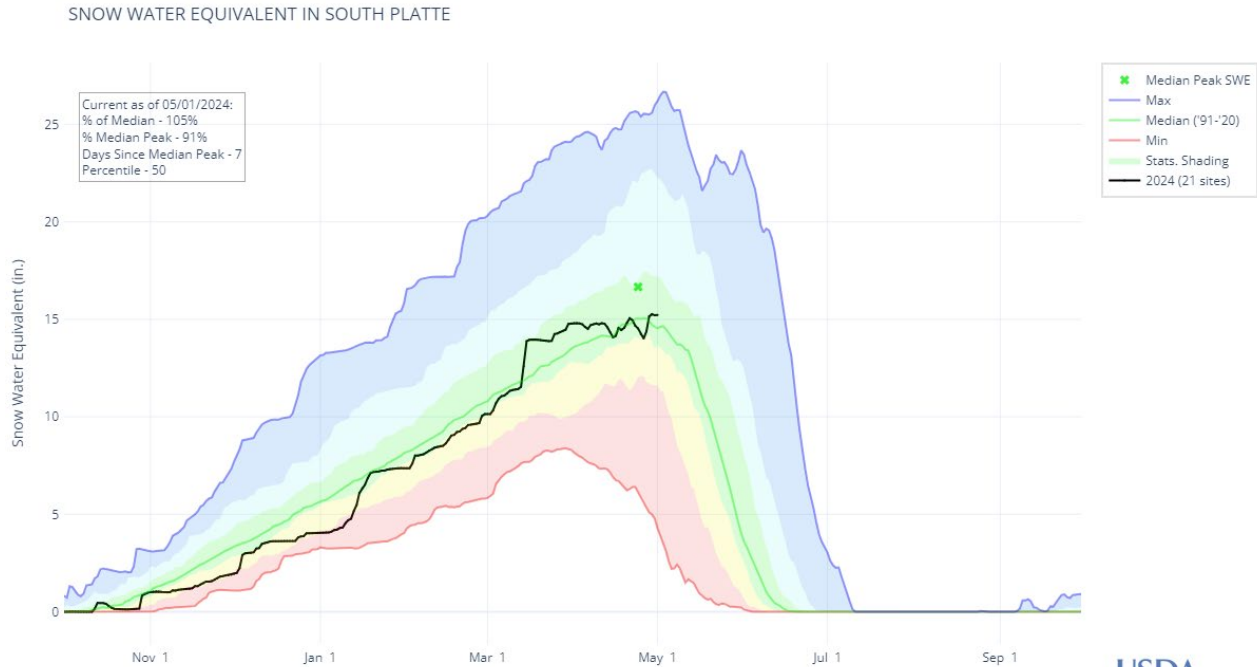


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

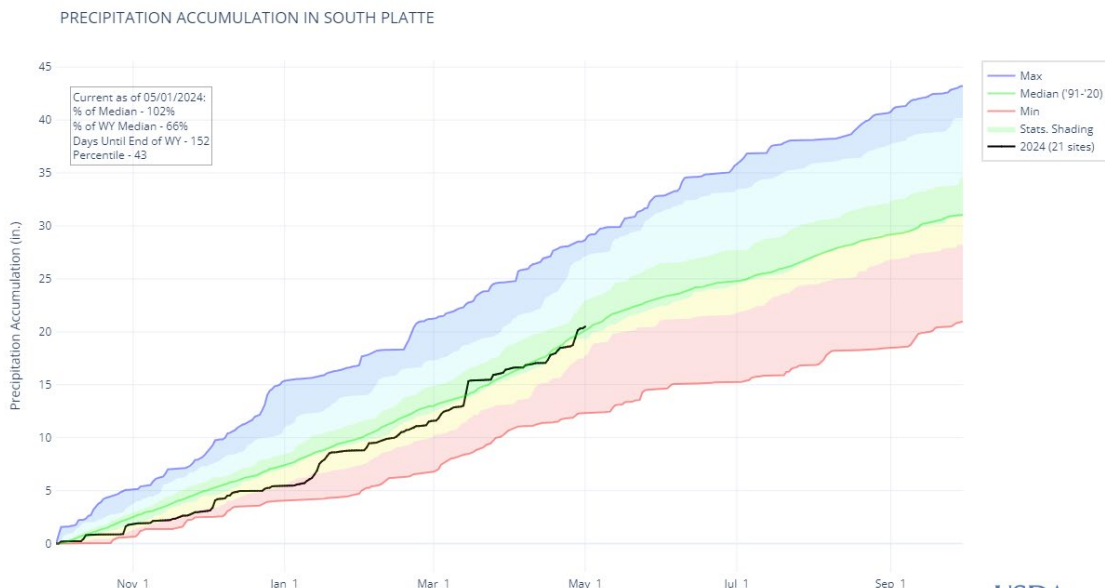
SOUTH PLATTE RIVER BASIN

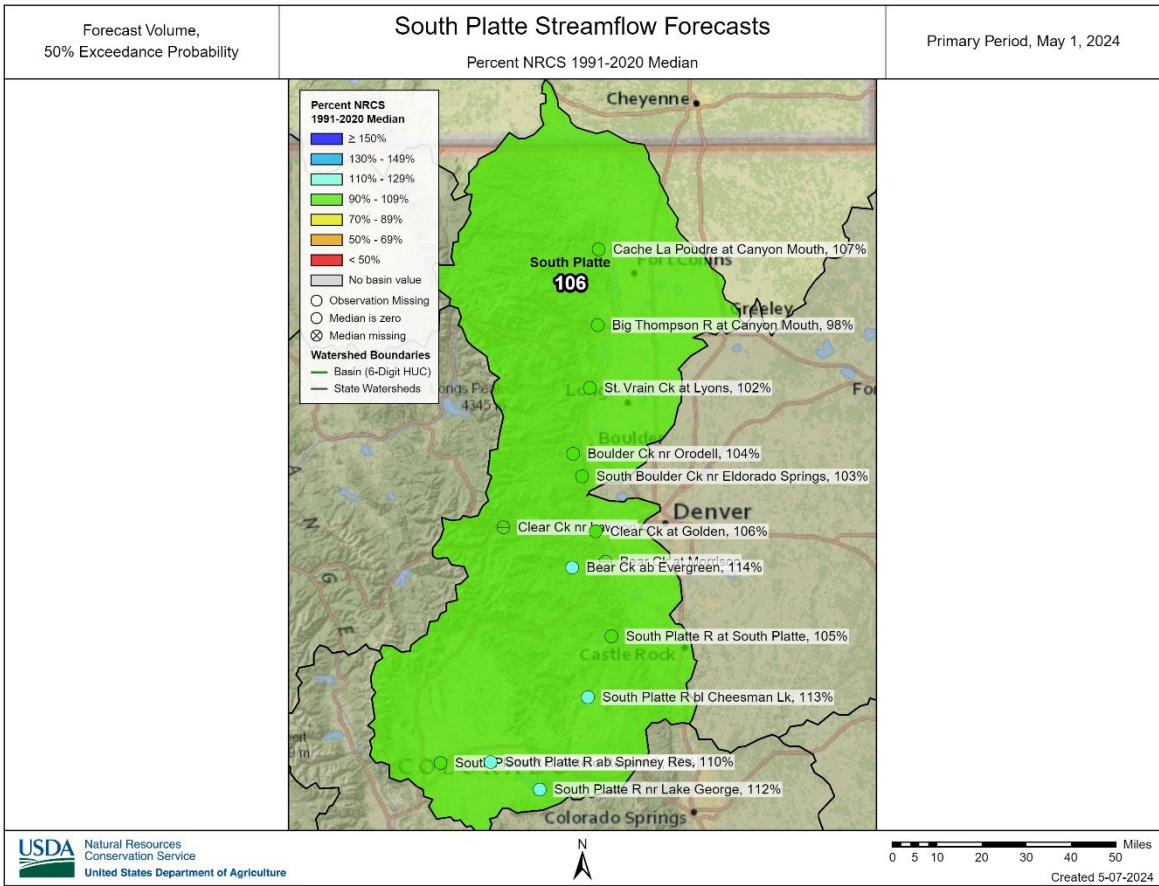
May 1st, 2024

Snowpack in the South Platte River basin is above normal at 105% of median. Precipitation for April was 101% of median which brings water year-to-date precipitation to 102% of median. Reservoir storage at the end of April was 97% of median compared to 93% last year. Current streamflow forecasts are at 106 percent of median and range from 97% of median at Antero Reservoir Inflow to 114% of median for Bear Creek above Evergreen.

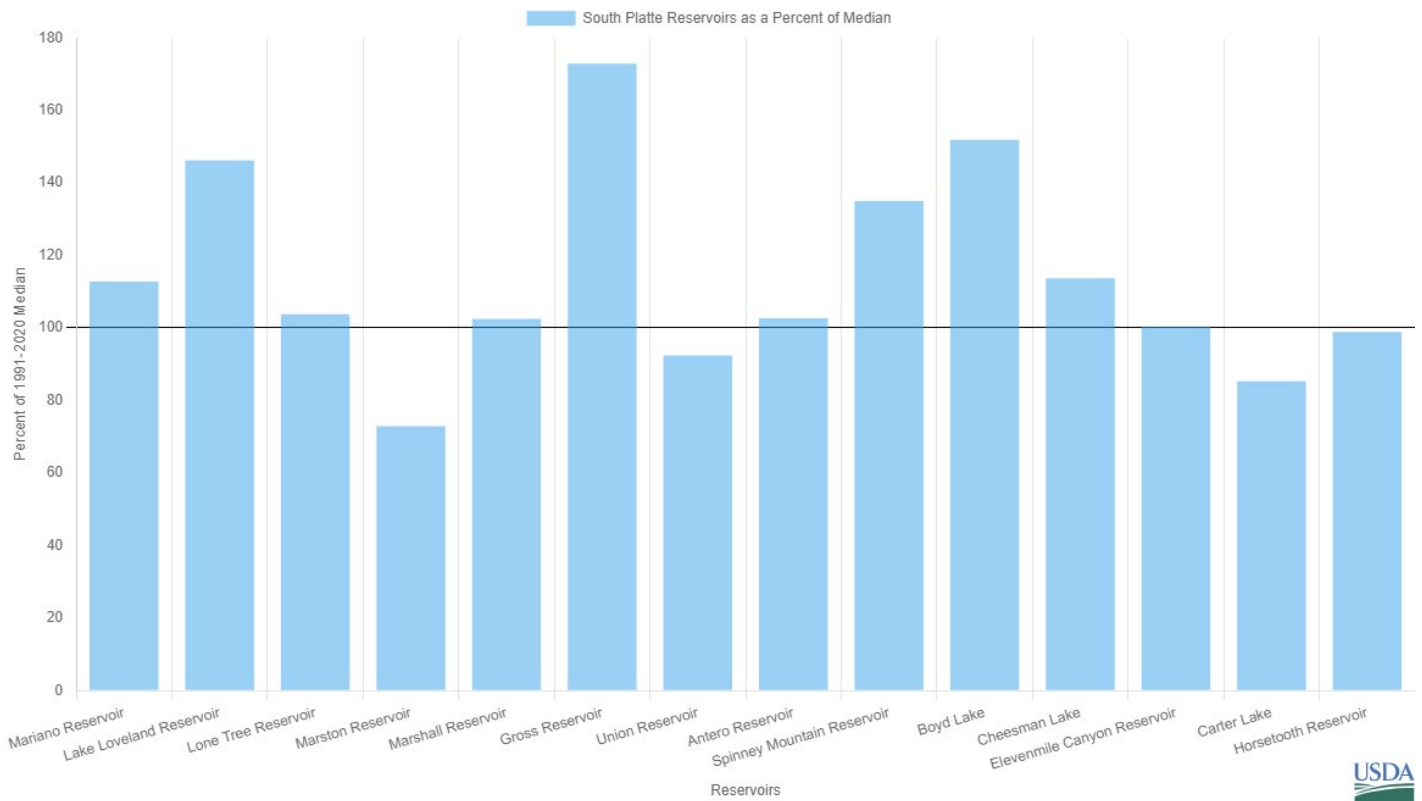


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South Platte Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

South Platte Sub-Basin Snow Data

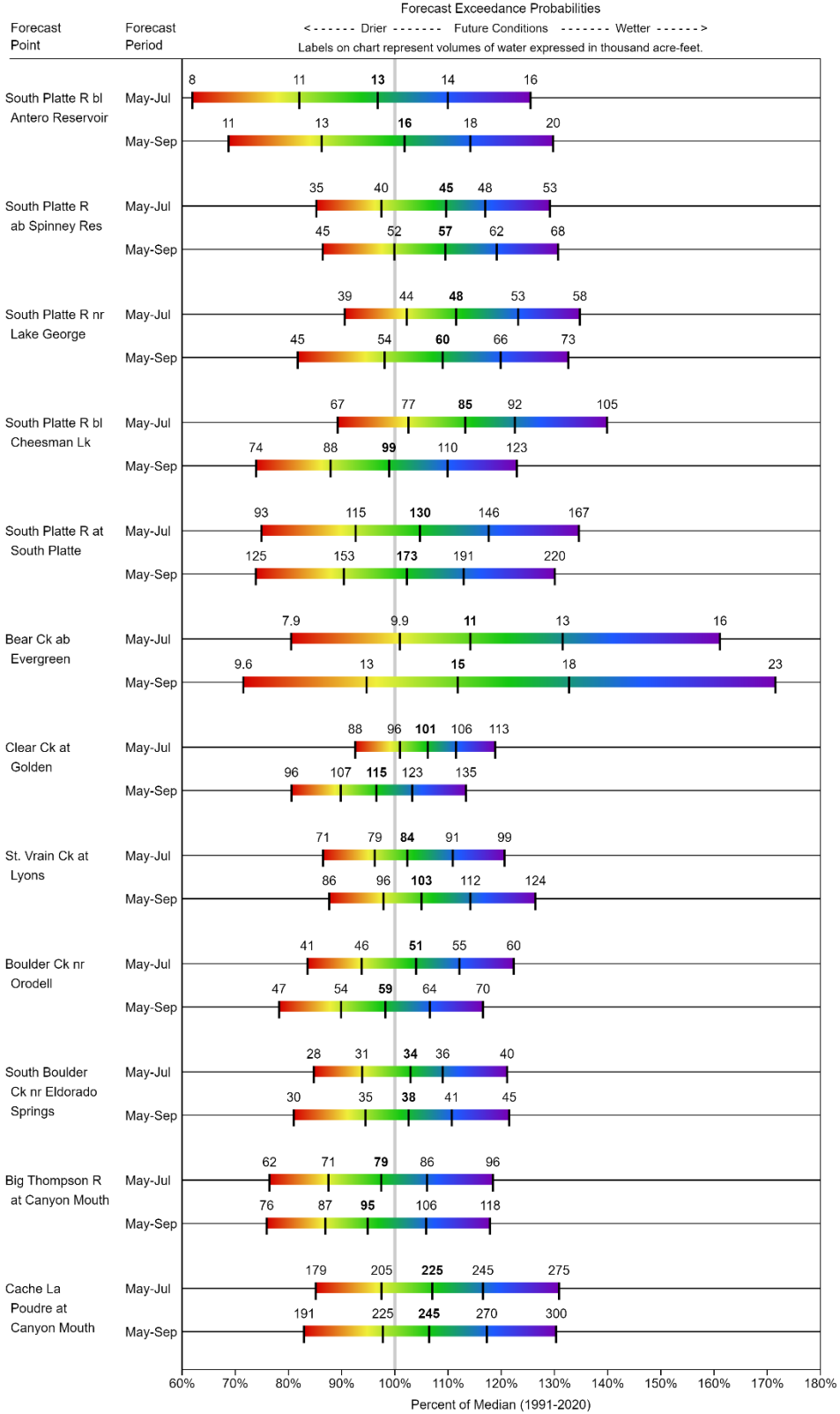
	# of Sites	% Median	Last Year % Median
Upper South Platte	15.0	105.9	85.1
North Fork Cache La Poudre	4.0	106.7	115.3
Cache La Poudre	12.0	95.6	113.5
Big Thompson	7.0	103.1	119.5
Clear	5.0	110.1	90.1
Boulder	6.0	111.2	106.2
Saint Vrain	5.0	119.1	119.4

Reservoir Storage End of April 2024

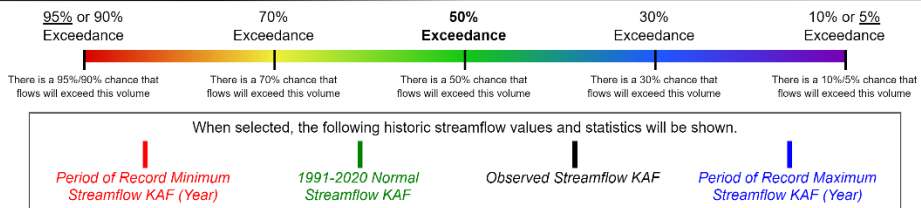
South Platte Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Marshall Reservoir	9.23	8.12	9.0	102.6
Union Reservoir	10.91	8.88	11.8	92.5
Chambers Lake	nan	3.67	3.6	nan
Black Hollow Reservoir	nan	3.54	2.9	nan
Lone Tree Reservoir	8.62	8.12	8.3	103.9
Fossil Creek Reservoir	nan	9.39	9.7	nan
Boyd Lake	46.94	21.57	30.9	151.9
Marston Reservoir	6.2	7.14	8.5	72.9
Gross Reservoir	18.5	4.81	10.7	172.9
Windsor Reservoir	nan	13.84	13.9	nan
Lake Loveland Reservoir	11.99	2.87	8.2	146.2
Cobb Lake	nan	14.76	14.2	nan
Antero Reservoir	20.13	20.41	19.6	102.7
Spinney Mountain Reservoir	40.77	23.72	30.2	135.0
Horsetooth Reservoir	124.22	113.64	125.6	98.9
Ralph Price Reservoir	nan	12.95	12.9	nan
Cache La Poudre	nan	7.73	9.6	nan
Mariano Reservoir	5.42	5.04	4.8	112.9
Terry Reservoir	nan	5.26	5.9	nan
Elevenmile Canyon Reservoir	100.04	99.21	99.6	100.4
Cheesman Lake	77.91	65.84	68.5	113.7
Halligan Reservoir	nan	6.43	5.4	nan
Carter Lake	87.29	103.1	102.3	85.3

SOUTH PLATTE
Water Supply Forecasts
 May 1, 2024



Legend

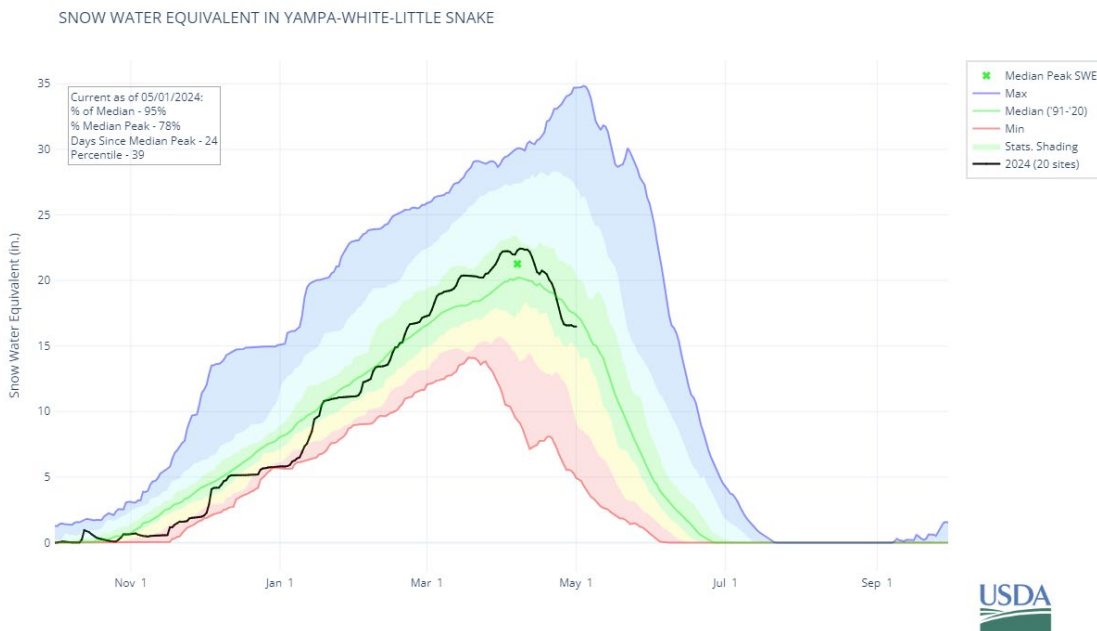


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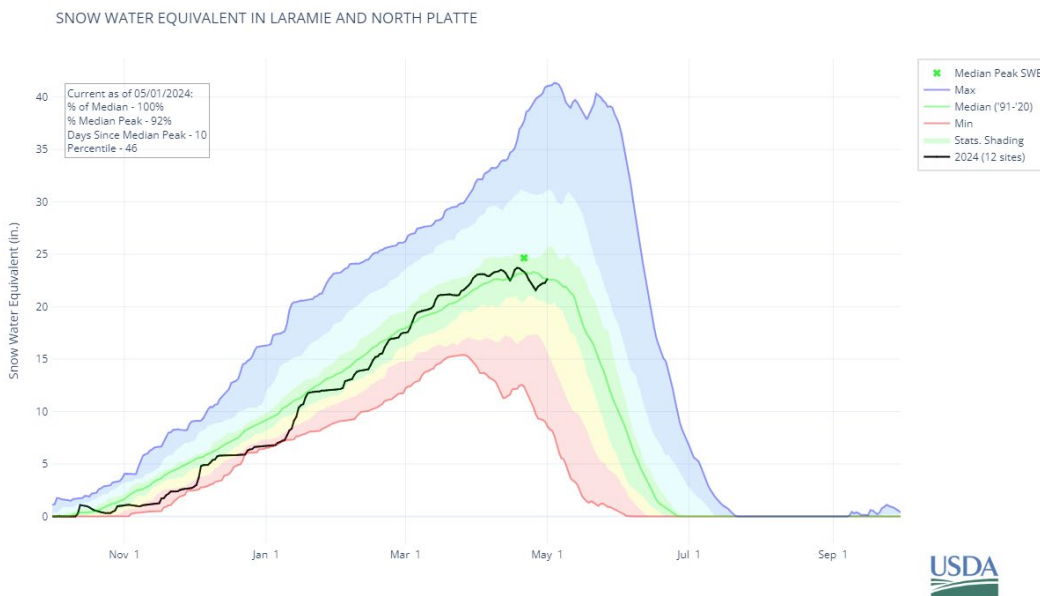
YAMPA-WHITE-LITTLE SNAKE AND LARAMIE-NORTH PLATTE RIVER BASINS

May 1st, 2024

Snowpack in the Yampa-White-Little Snake is below normal at 95% and the Laramie-North Platte River basins are normal at 100% of the median. Precipitation for April was 83% and 102% of median and water year-to-date precipitation is 104% and 101% of median, for each basin respectively. Reservoir storage at the end of April for the Yampa-White-Little Snake was 111% of median, compared to 91% last year. Current streamflow forecasts range from 94% at Little Snake River near Dixon to 147% of median at Yampa River above Stagecoach Reservoir.

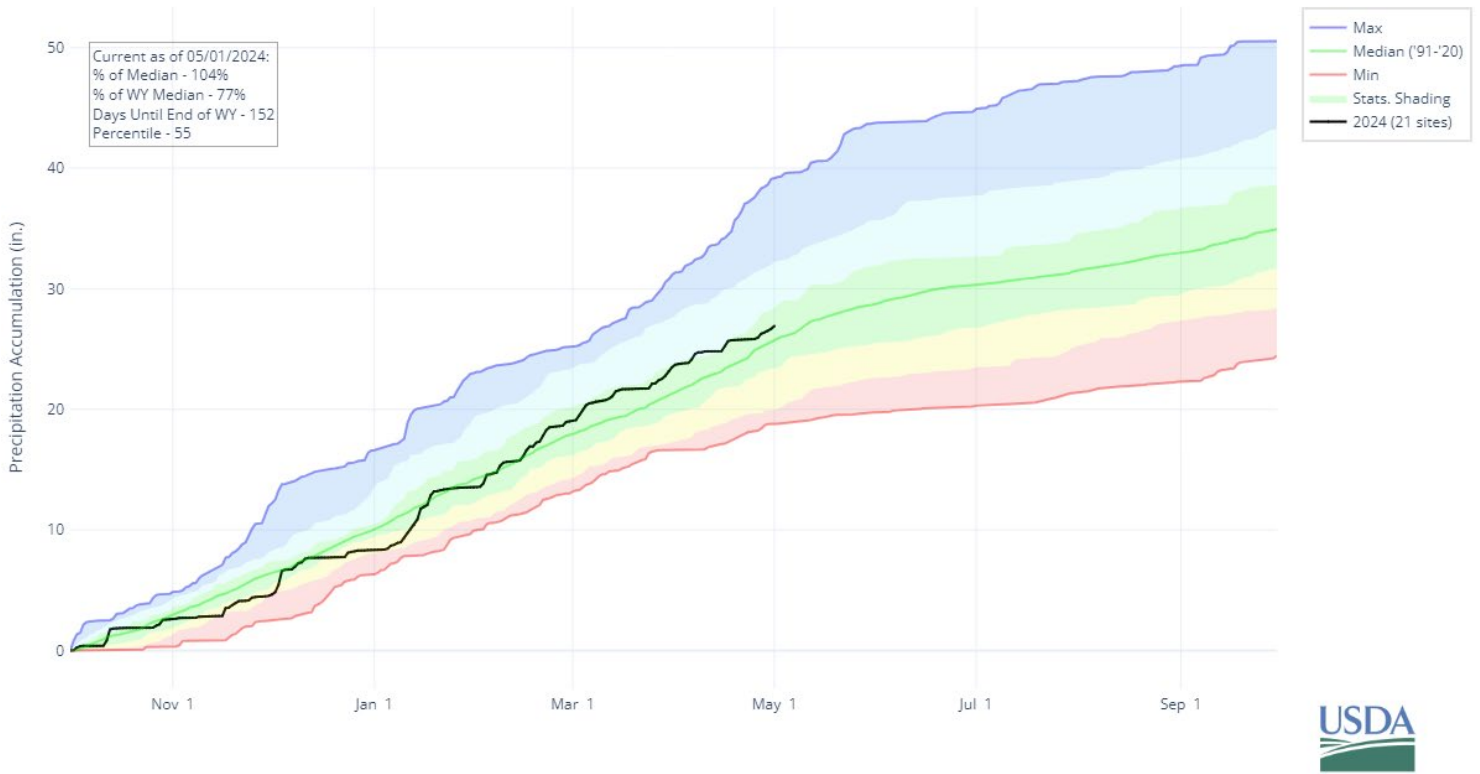


*SWE values calculated using daily SNOTEL data only

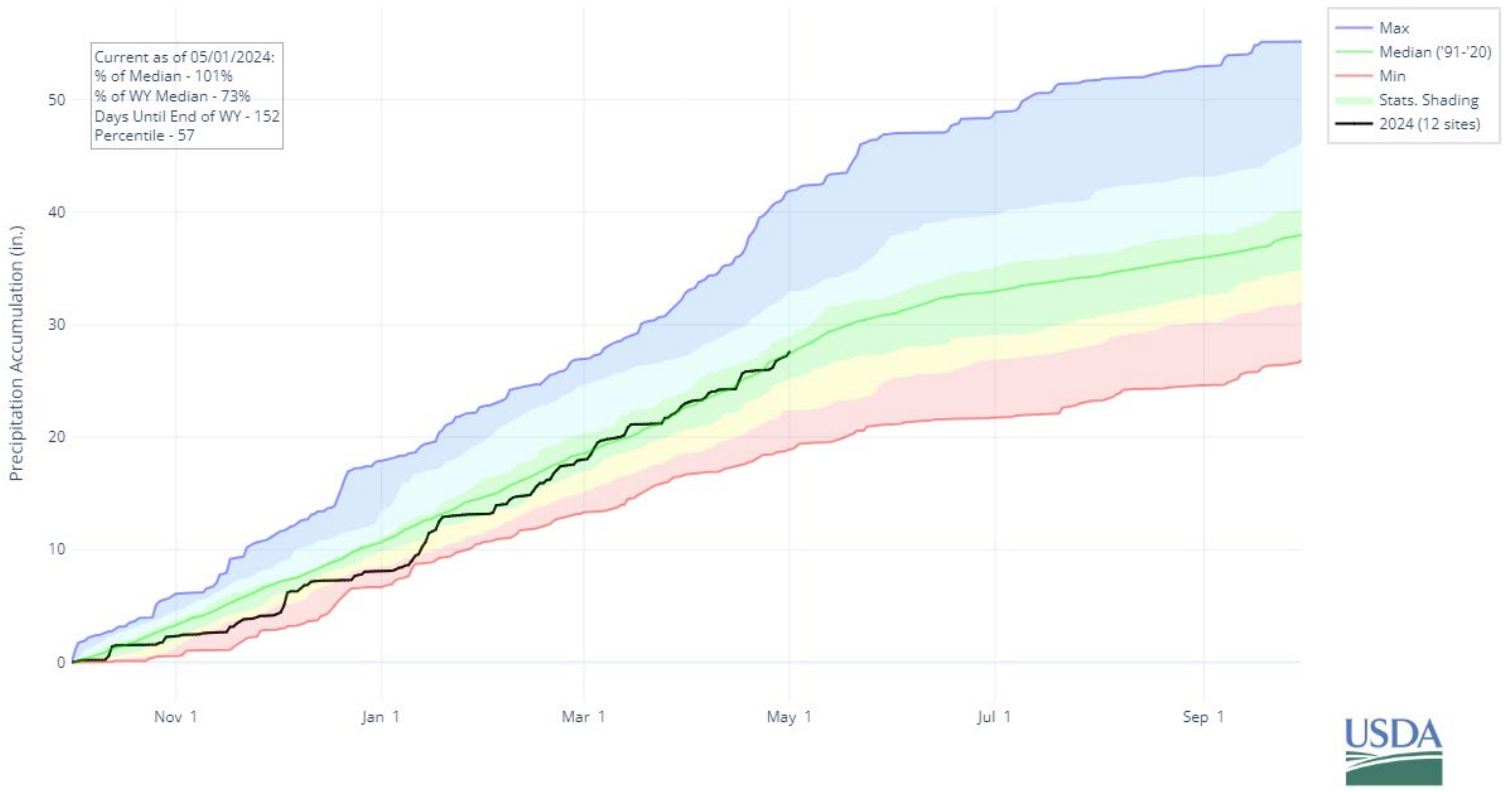


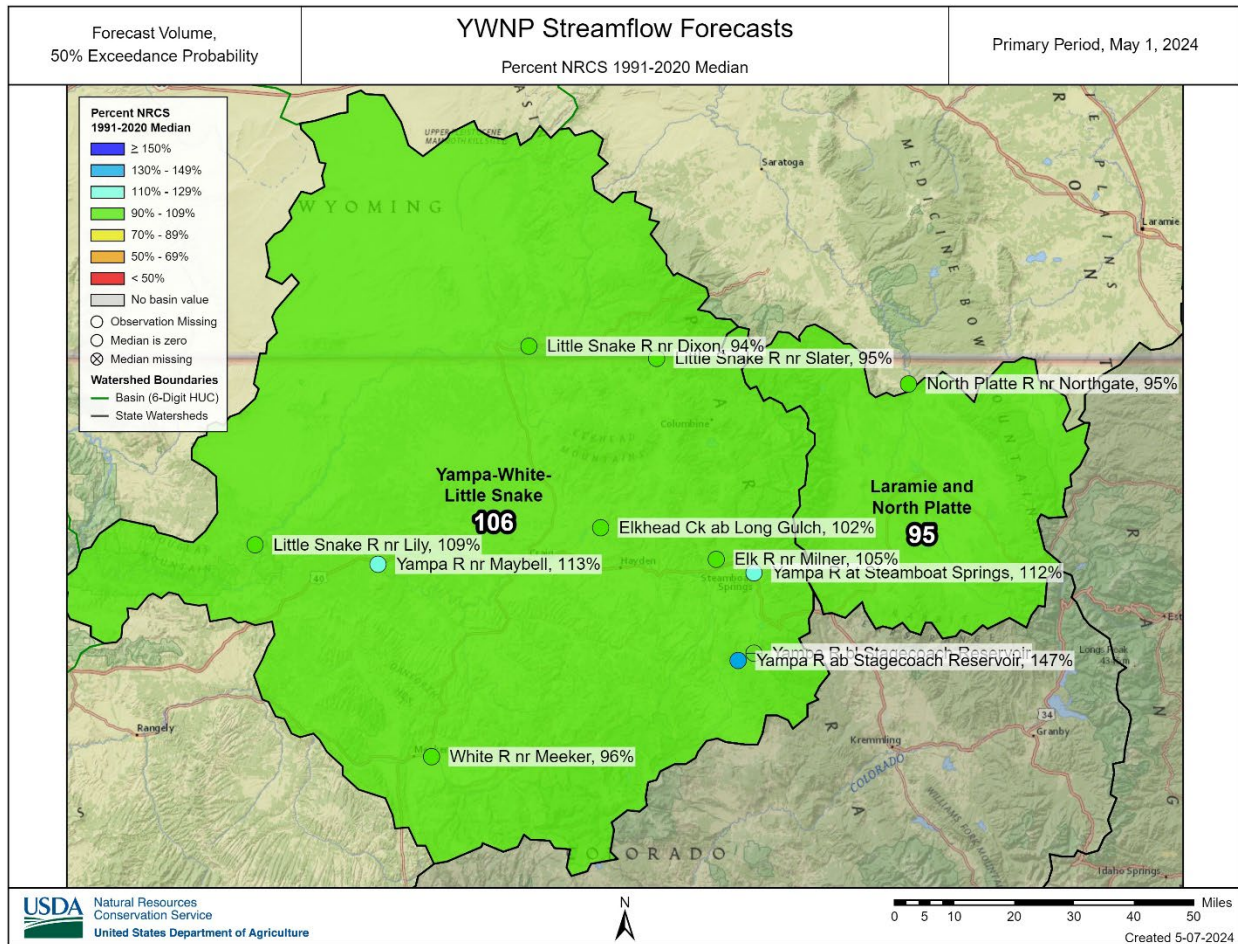
*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN YAMPA-WHITE-LITTLE SNAKE

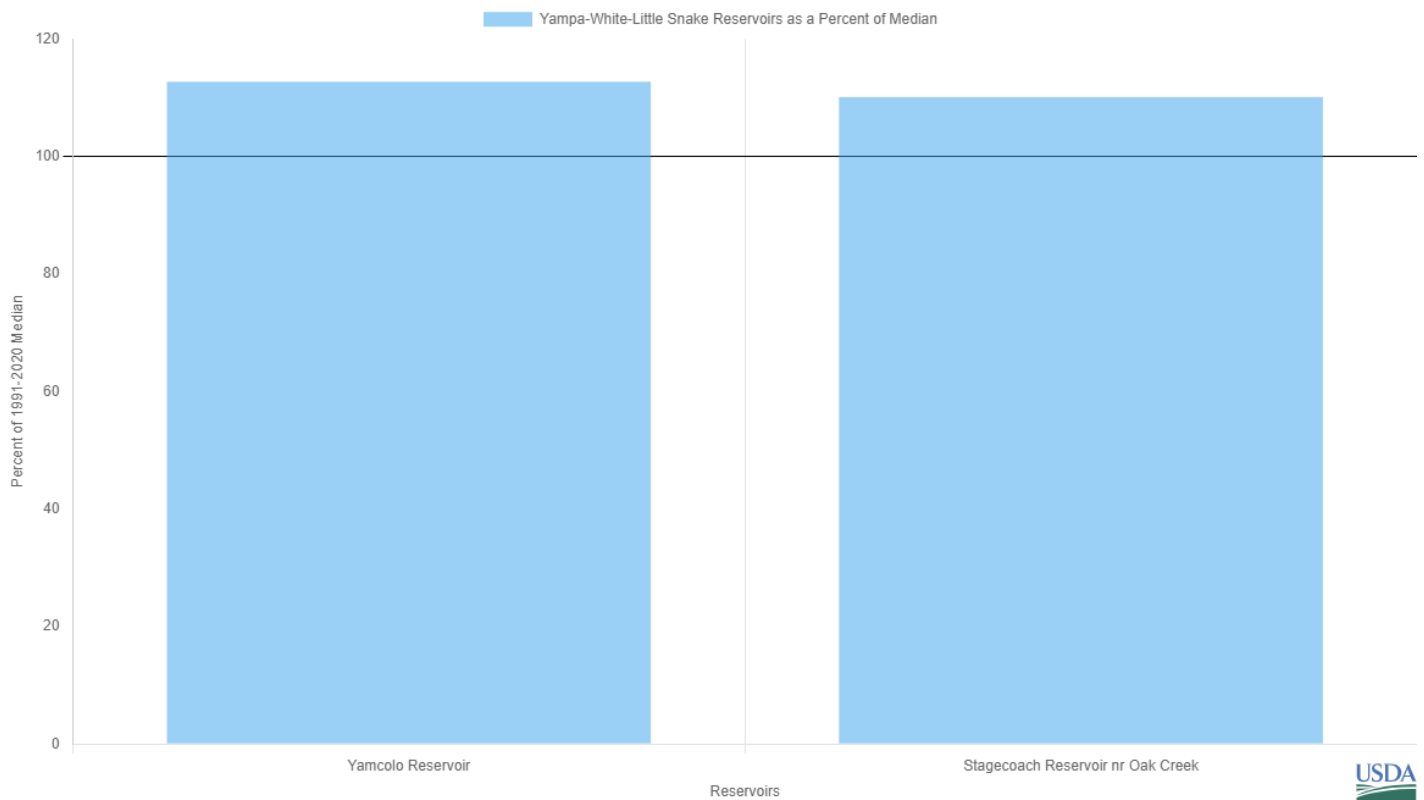


PRECIPITATION ACCUMULATION IN LARAMIE AND NORTH PLATTE





Yampa-White-Little Snake Reservoir Storage Summary for May 1st 2024



*No reservoirs are currently monitored in the Laramie-North Platte combined basin.

Watershed Snowpack Analysis May 1st, 2024

Yampa-White-Little Snake Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Yampa	10.0	98.0	132.6
Little Snake	10.0	92.4	166.8
White	4.0	90.7	157.9
Williams Fork of the Yampa	1.0	99.3	132.9
Elk	2.0	86.1	152.2

Laramie and North Platte Sub-Basin Snow Data

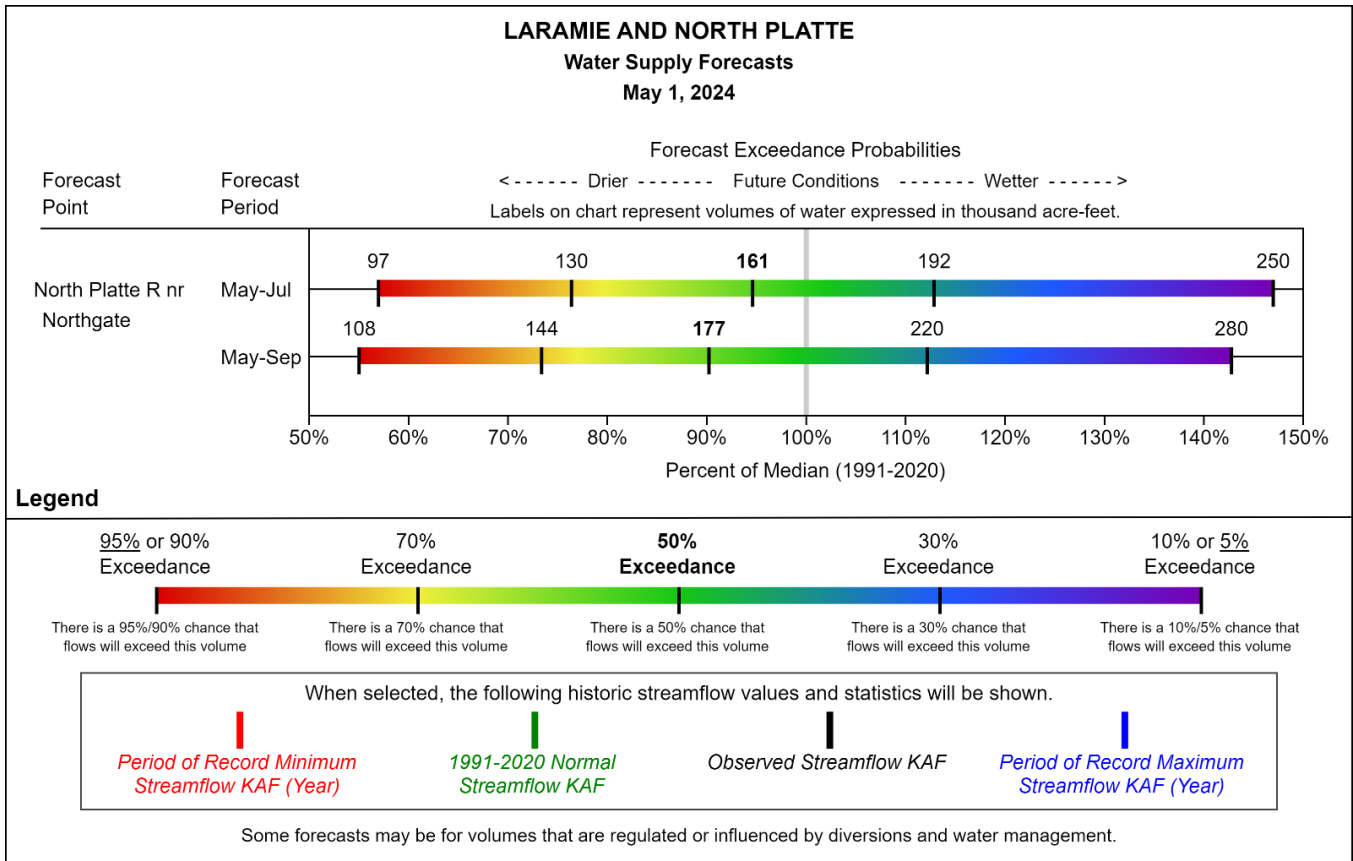
	# of Sites	% Median	Last Year % Median
North Platte Headwaters	14.0	99.2	127.1
Laramie	6.0	108.3	121.7

Reservoir Storage End of April 2024

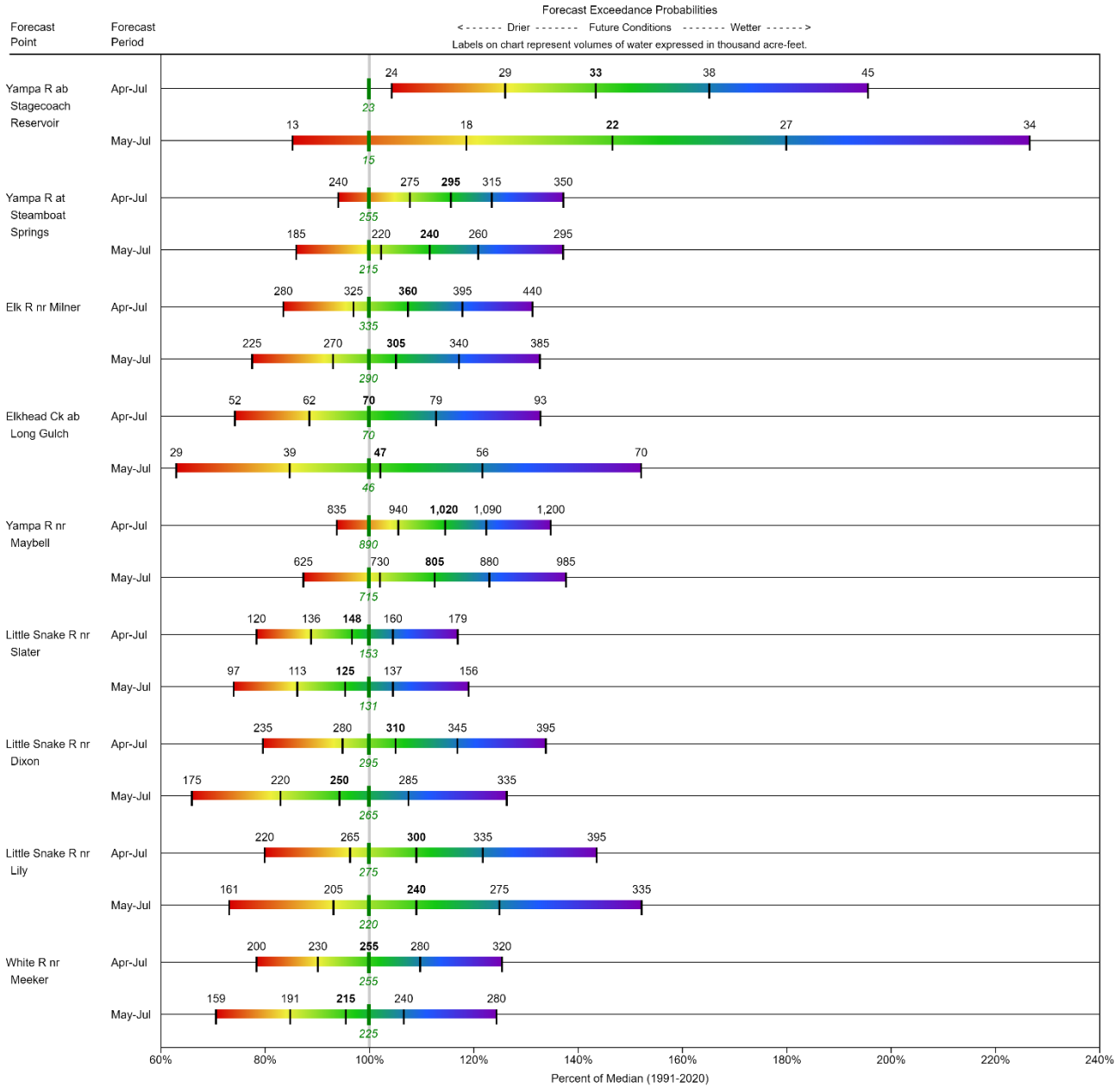
Yampa-White-Little Snake Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Elkhead Reservoir	nan	24.26	24.5	nan
High Savery Reservoir	nan	10.21	15.0	nan
Stagecoach Reservoir nr Oak Creek	35.11	32.46	31.9	110.1
Yamcolo Reservoir	9.24	5.41	8.2	112.7

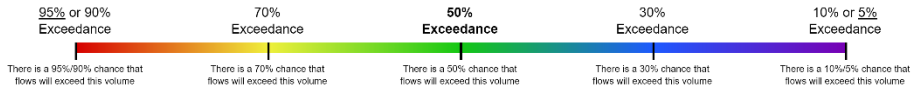
*No reservoirs are currently monitored in our database for the Laramie-North Platte combined basin.



YAMPA-WHITE-LITTLE SNAKE
Water Supply Forecasts
 May 1, 2024



Legend



When selected, the following historic streamflow values and statistics will be shown.

| Period of Record Minimum Streamflow KAF (Year)
| 1991-2020 Normal Streamflow KAF
| Observed Streamflow KAF
| Period of Record Maximum Streamflow KAF (Year)

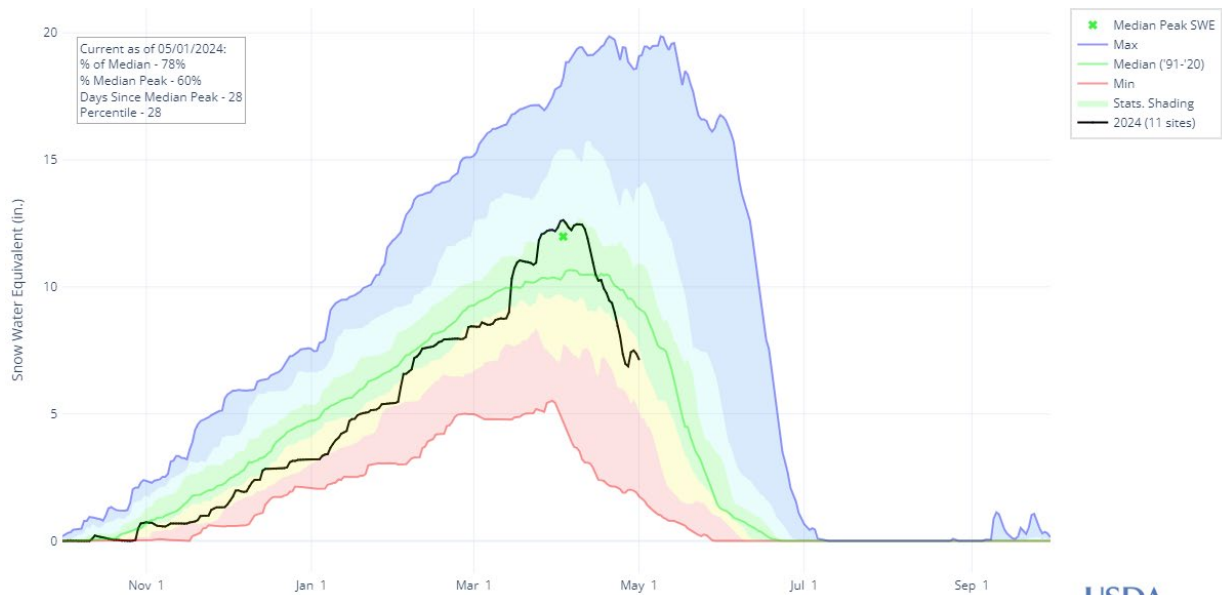
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

ARKANSAS RIVER BASIN

May 1st, 2024

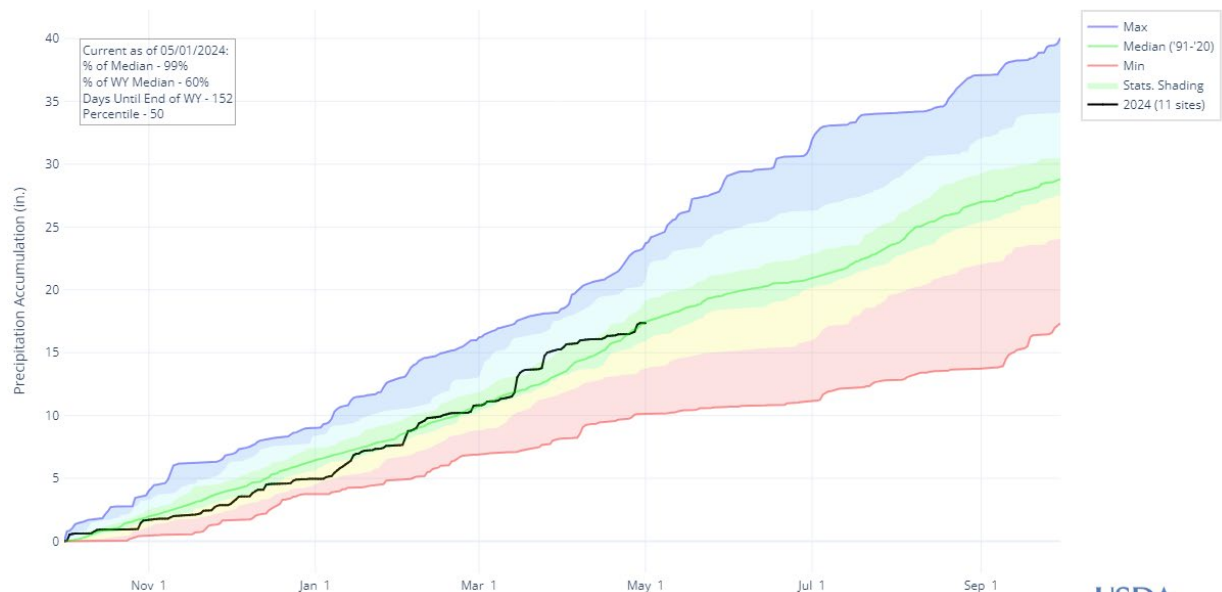
Snowpack in the Arkansas River basin is below normal at 84% of median. Precipitation for April was 62% of median which brings water year-to-date precipitation to 99% of median. Reservoir storage at the end of April was 108% of median compared to 91% last year. Current streamflow forecasts range from 52% of median at Grape Creek near Westcliffe to 127% of median at Chalk Creek near Nathrop.

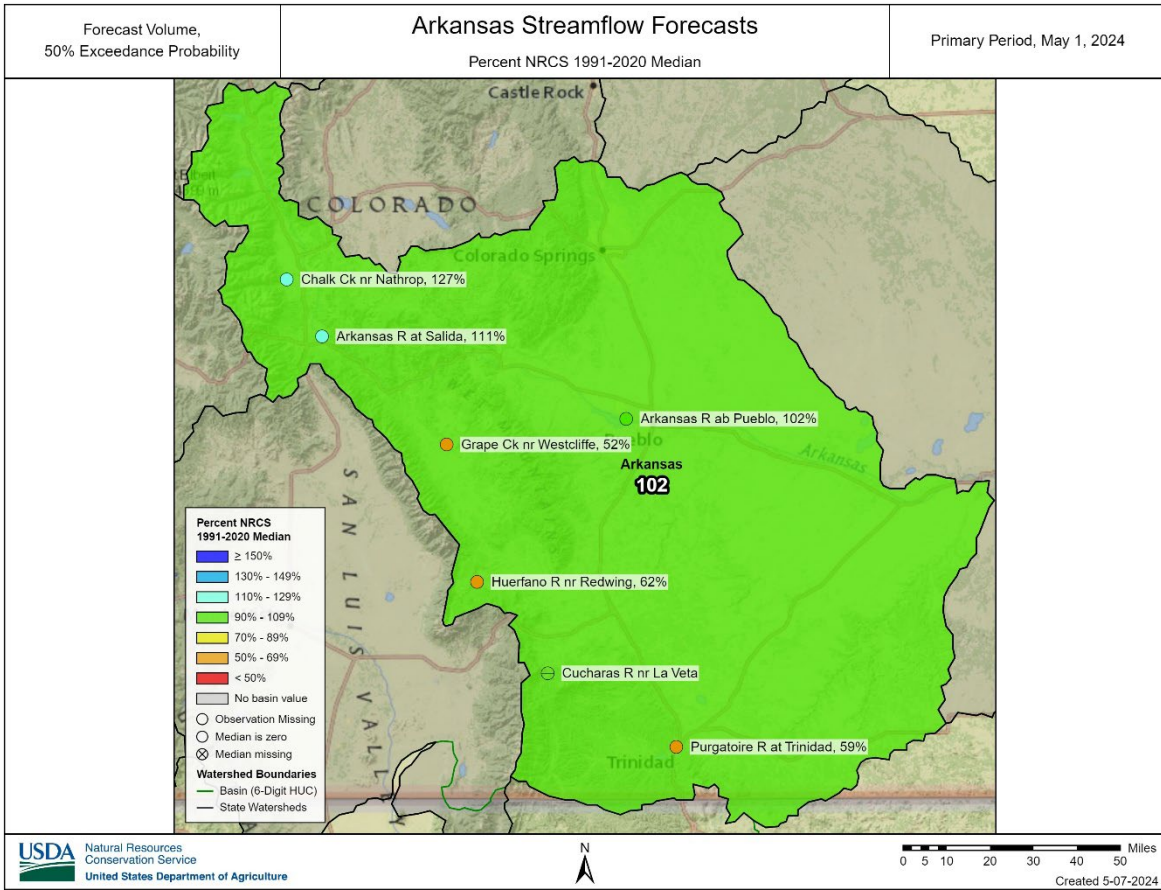
SNOW WATER EQUIVALENT IN ARKANSAS



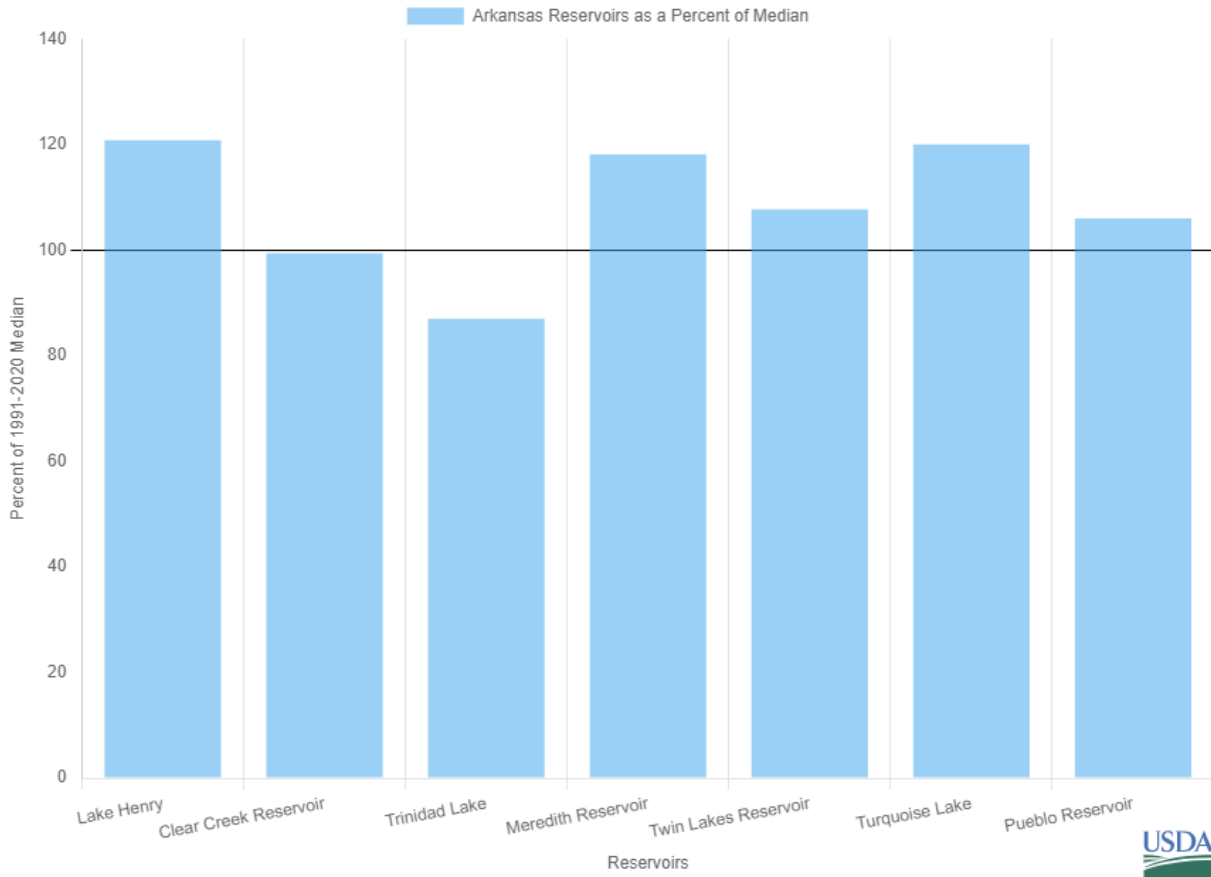
*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN ARKANSAS





Arkansas Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

Arkansas Sub-Basin Snow Data

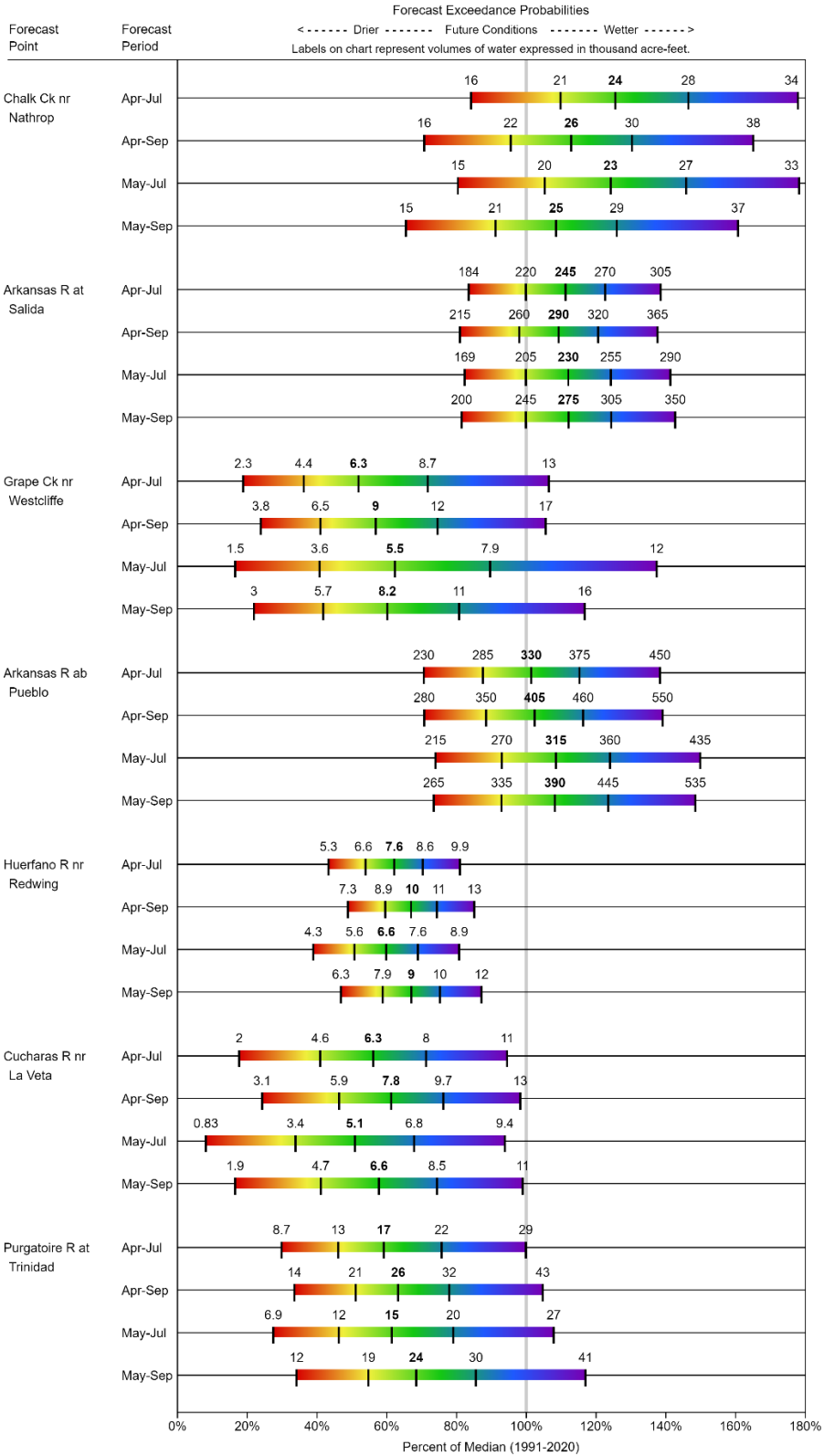
	# of Sites	% Median	Last Year % Median
Cucharas & Huerfano	5.0	4.4	42.8
Upper Arkansas Headwaters	8.0	102.3	104.2
Lower Arkansas Headwaters	3.0	77.8	60.3
Purgatoire	3.0	6.5	33.3
Apishapa	2.0	12.1	20.7

Reservoir Storage End of April 2024

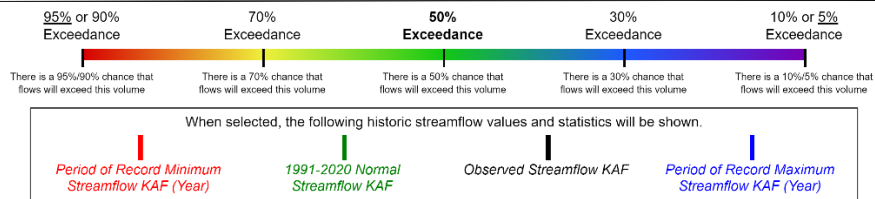
Arkansas Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Meredith Reservoir	37.22	8.98	31.5	118.2
Lake Henry	8.82	4.27	7.3	120.8
Clear Creek Reservoir	7.95	8.52	8.0	99.4
Turquoise Lake	72.14	53.93	60.1	120.0
Trinidad Lake	22.27	22.82	25.6	87.0
Twin Lakes Reservoir	37.25	37.88	34.6	107.7
Pueblo Reservoir	232.34	213.82	219.2	106.0

ARKANSAS
Water Supply Forecasts
 May 1, 2024



Legend

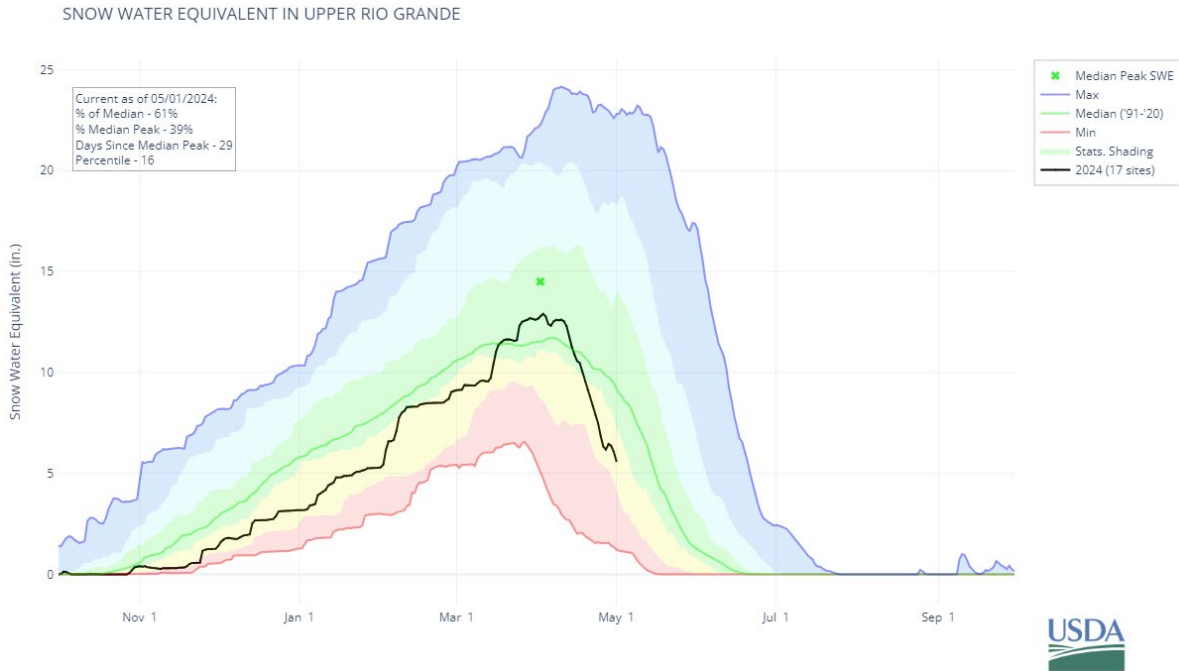


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

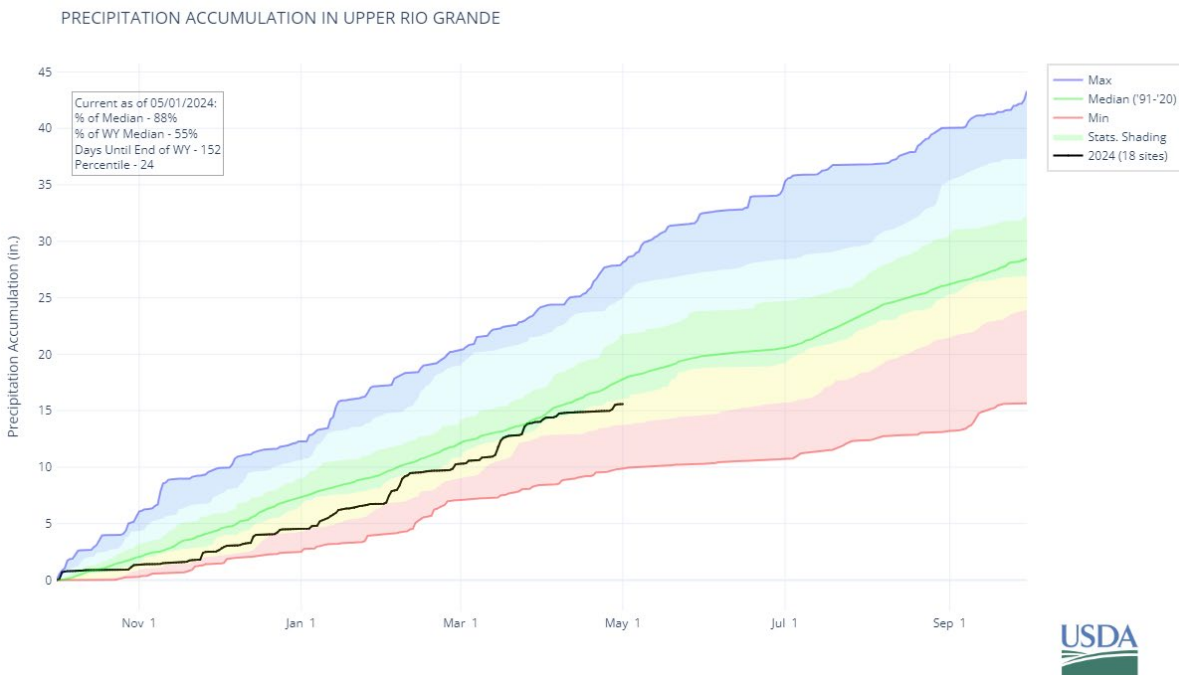
UPPER RIO GRANDE RIVER BASIN

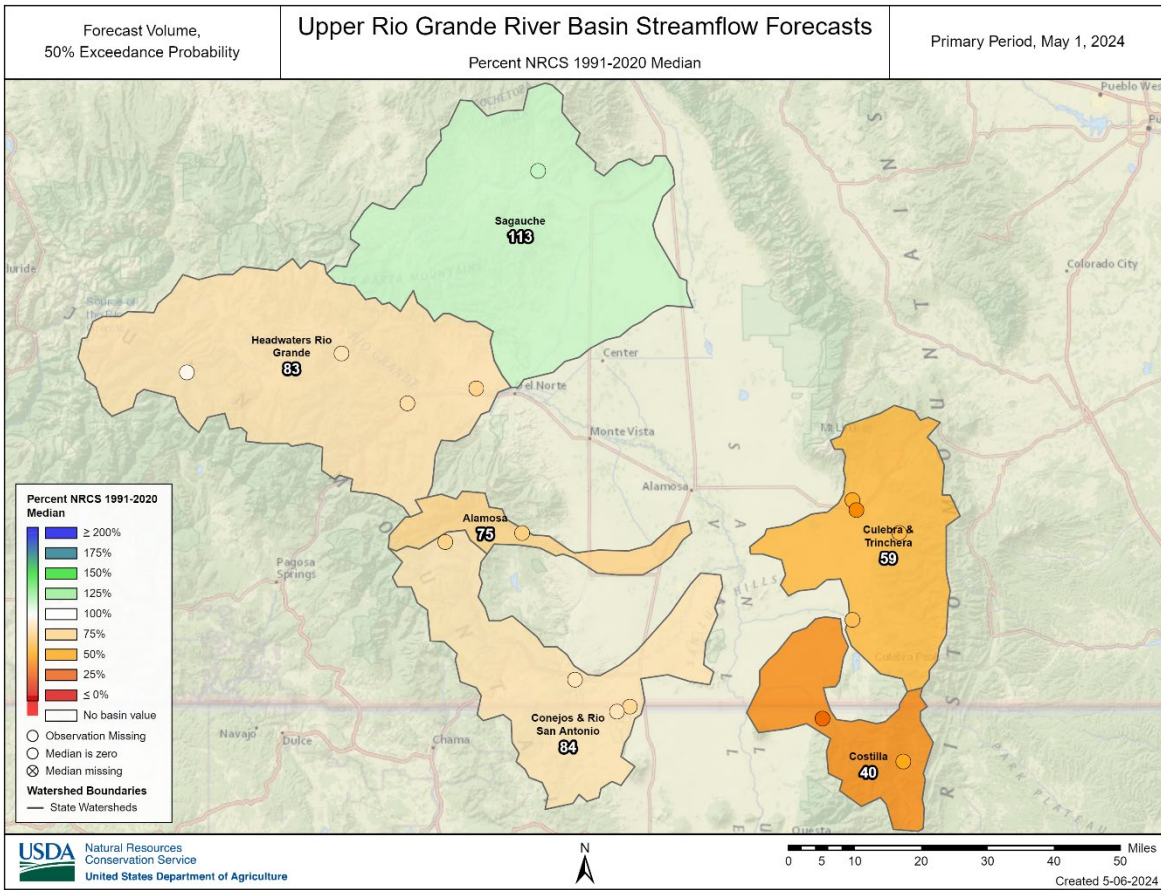
May 1st, 2024

Snowpack in the Upper Rio Grande River basin is above normal at 56% of median. Precipitation for April was 54% of median which brings water year-to-date precipitation to 88% of median. Reservoir storage at the end of April was 113% of median compared to 104% last year. Current streamflow forecasts range from 32% of median at Sangre De Cristo Creek to 116% of median at Saguache Creek near Saguache.

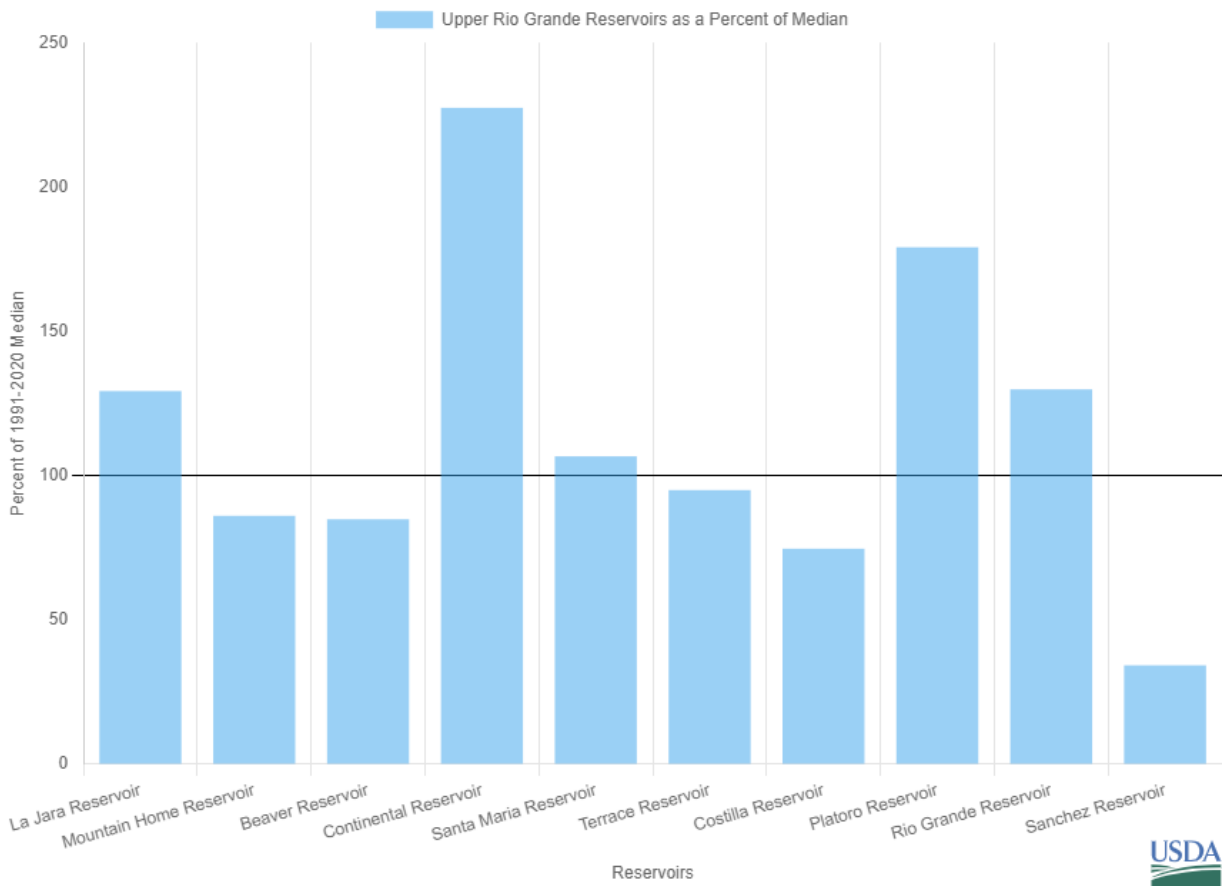


*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.





Upper Rio Grande Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

Upper Rio Grande Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Sagauche	4.0	64.7	105.1
Costilla	2.0	0.0	0.0
Headwaters Rio Grande	8.0	59.4	121.5
Northern San Luis Valley	2.0	69.9	31.6
Conejos & Rio San Antonio	3.0	58.9	162.2
Culebra & Trinchera	4.0	29.4	84.6
Alamosa	3.0	28.2	133.6

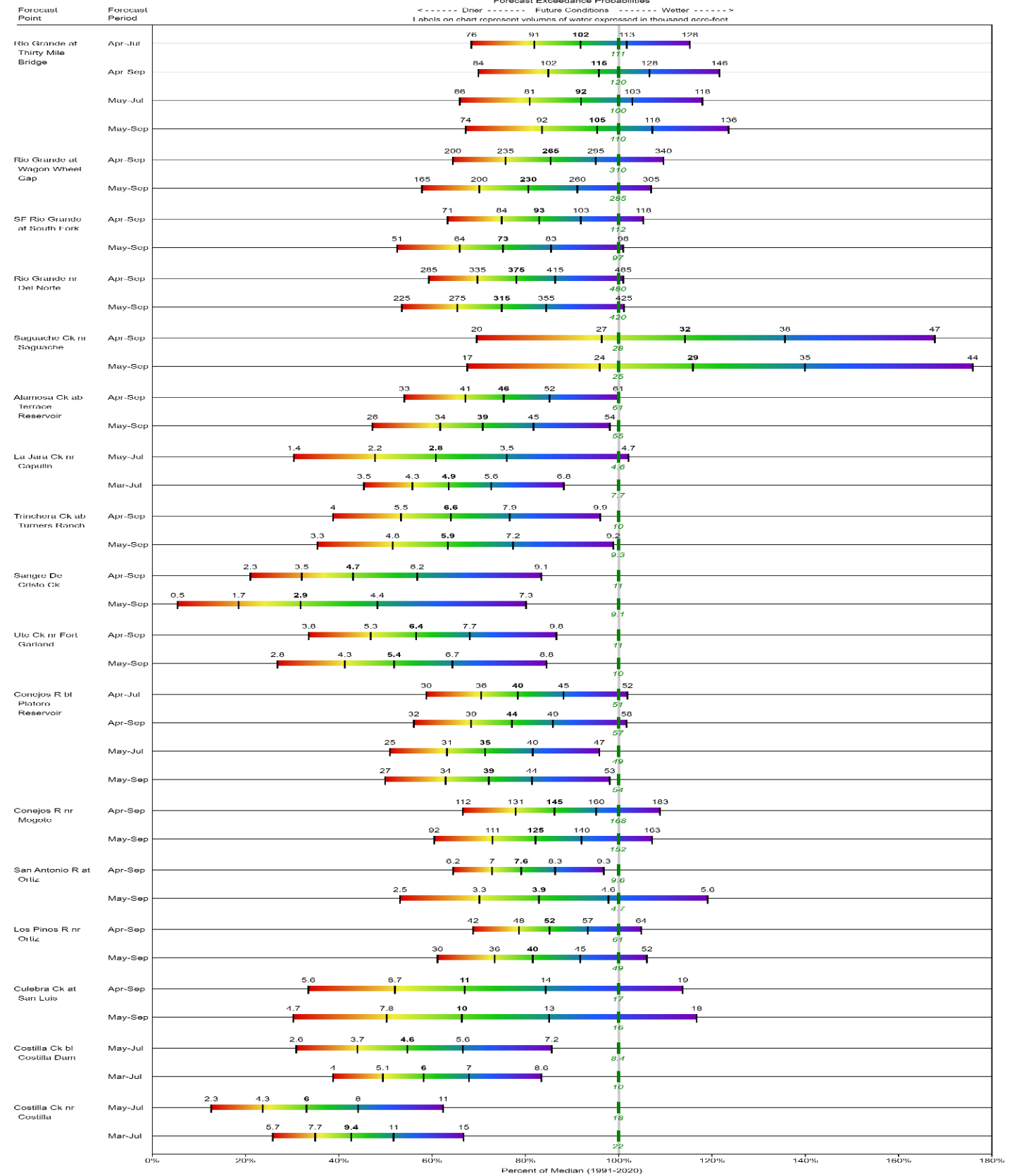
Reservoir Storage End of April 2024

Upper Rio Grande Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Continental Reservoir	15.92	13.9	7.0	227.4
La Jara Reservoir	2.97	2.73	2.3	129.1
Terrace Reservoir	7.7	9.51	8.1	95.1
Sanchez Reservoir	7.06	8.95	20.6	34.3
Rio Grande Reservoir	25.33	29.57	19.5	129.9
Beaver Reservoir	3.74	3.6	4.4	85.0
Mountain Home Reservoir	3.1	4.96	3.6	86.1
Costilla Reservoir	6.2	8.26	8.3	74.7
Santa Maria Reservoir	8.0	8.5	7.5	106.7
Platoro Reservoir	32.77	13.8	18.3	179.1

**UPPER RIO GRANDE
Water Supply Forecasts
May 1, 2024**

Forecast Exceedance Probabilities
 <----- Drier ----- Future Conditions ----- Wetter ----->
 Labels on chart represent volumes of water expressed in thousand acre-feet



Legend

95% or 90% Exceedance: There is a 5% or 10% chance that flows will exceed this volume.

70% Exceedance: There is a 30% chance that flows will exceed this volume.

50% Exceedance: There is a 50% chance that flows will exceed this volume.

30% Exceedance: There is a 70% chance that flows will exceed this volume.

10% or 5% Exceedance: There is a 90% or 95% chance that flows will exceed this volume.

When selected, the following historic streamflow values and statistics will be shown:

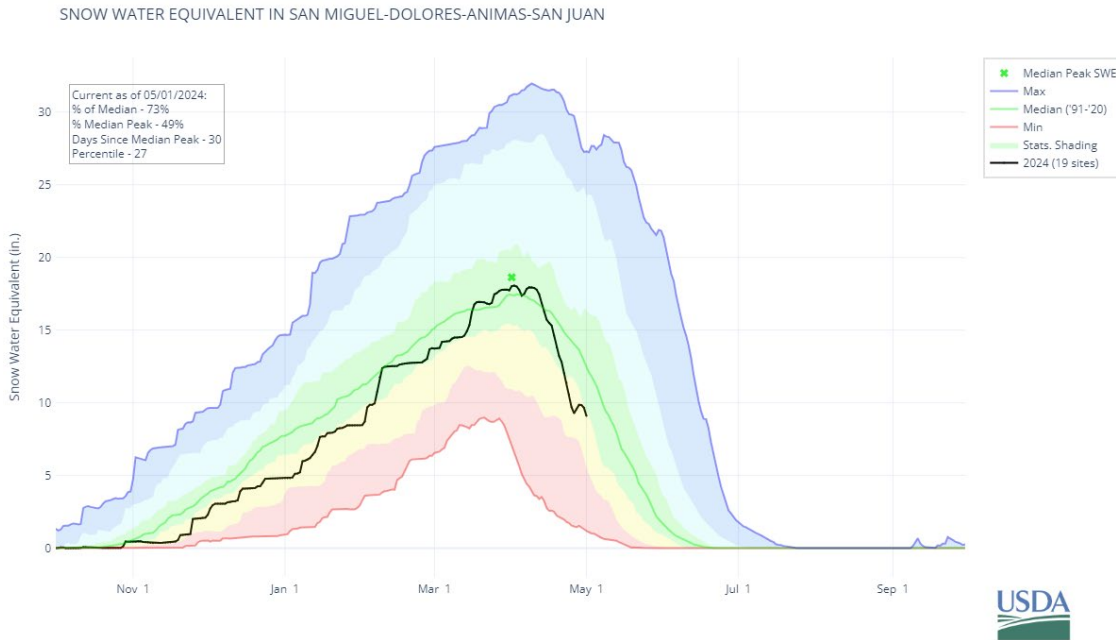
- Period of Record Minimum Streamflow KAF (Year)
- 1991-2020 Normal Streamflow KAF
- Observed Streamflow KAF
- Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

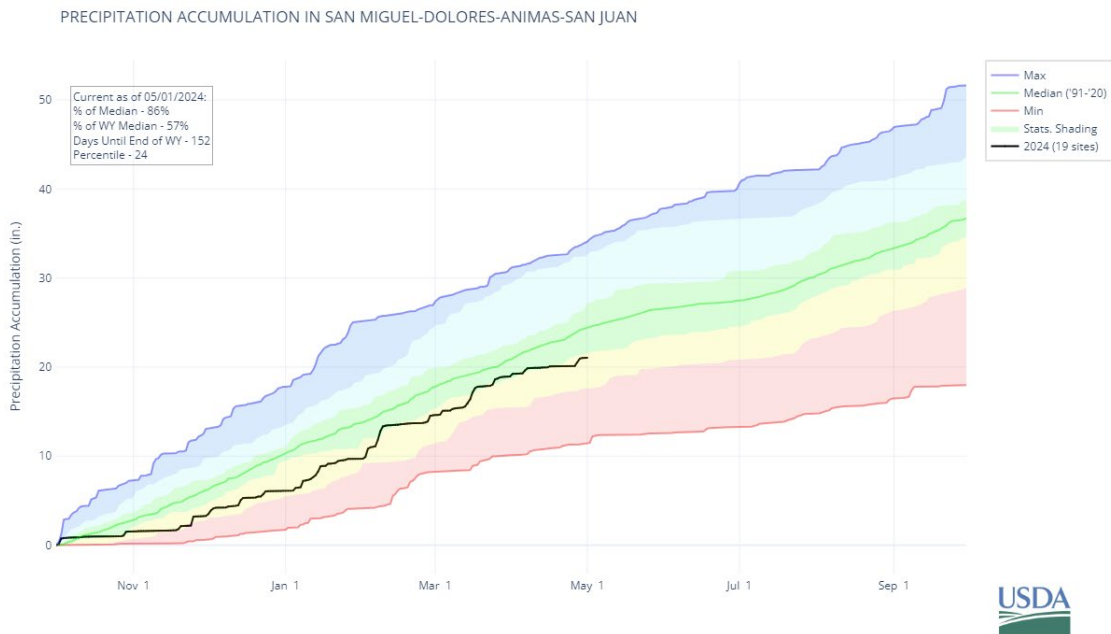
SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN COMBINED RIVER BASIN

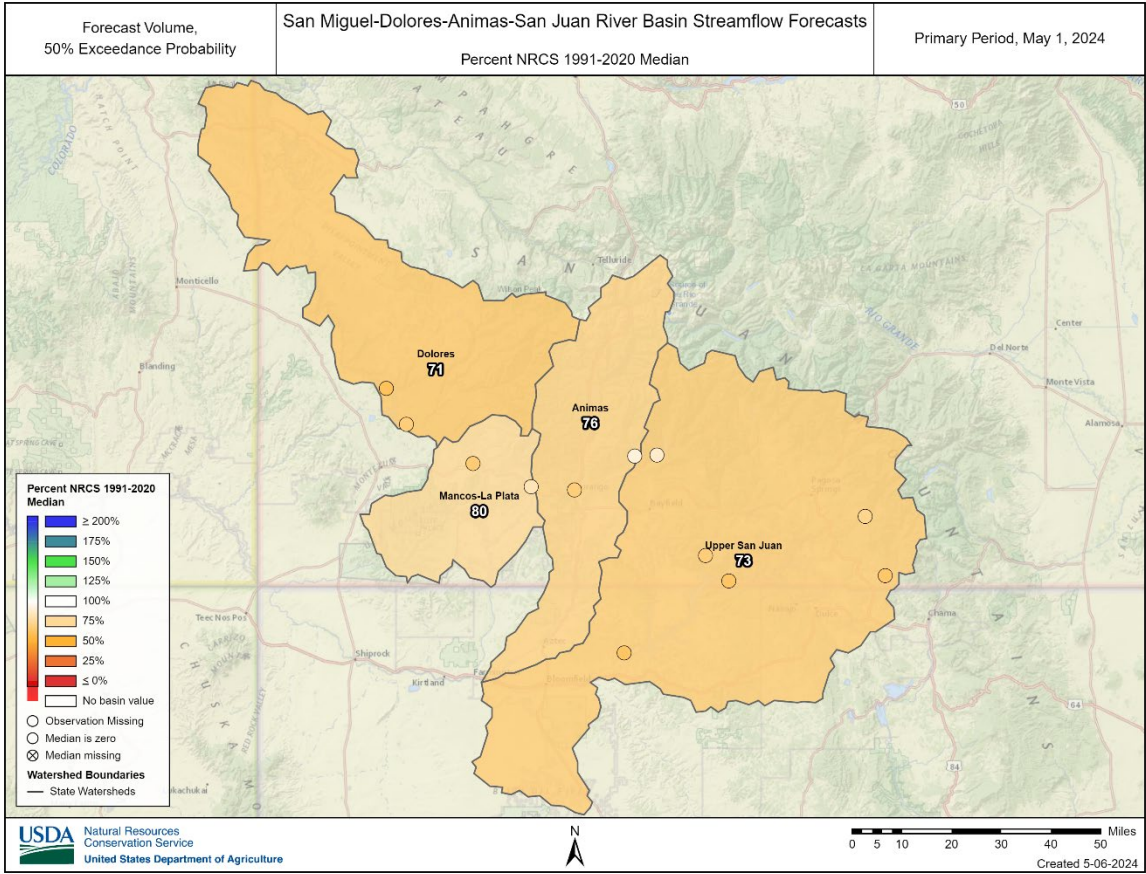
May 1st, 2024

Snowpack in the combined southwest river basins is below normal at 72% of median. Precipitation for April was 68% of median which brings water year-to-date precipitation to 86% of median. Reservoir storage at the end of April was 84% of median compared to 82% last year. Current streamflow forecasts range from 62% of median at San Juan River near Carracas to 88% of median at Florida River below Lemon Reservoir near Durango.

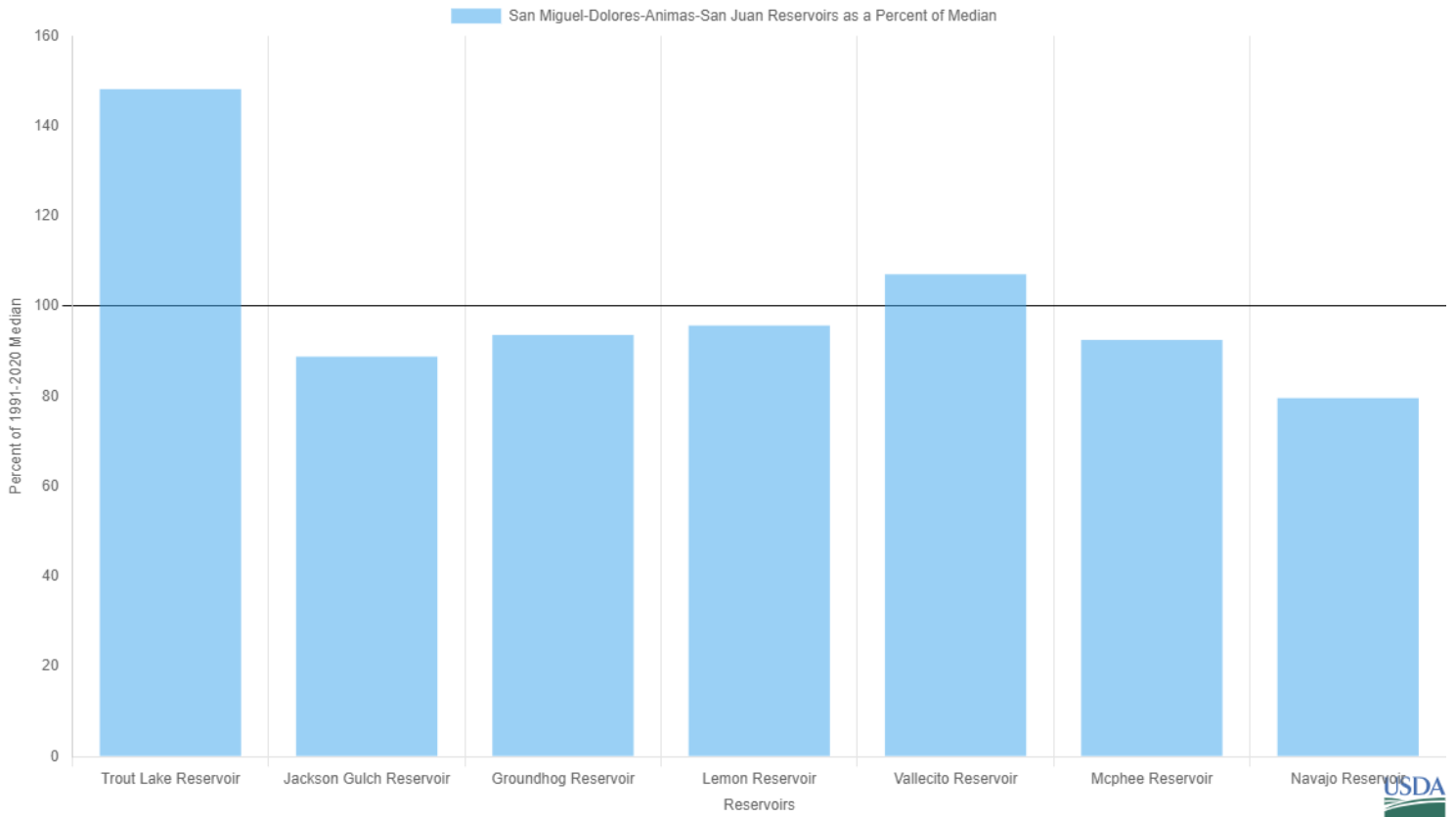


*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.





San Miguel-Dolores-Animas-San Juan Reservoir Storage Summary for May 1st 2024



Watershed Snowpack Analysis May 1st, 2024

San Miguel-Dolores-Animas-San Juan Sub-Basin Snow Data

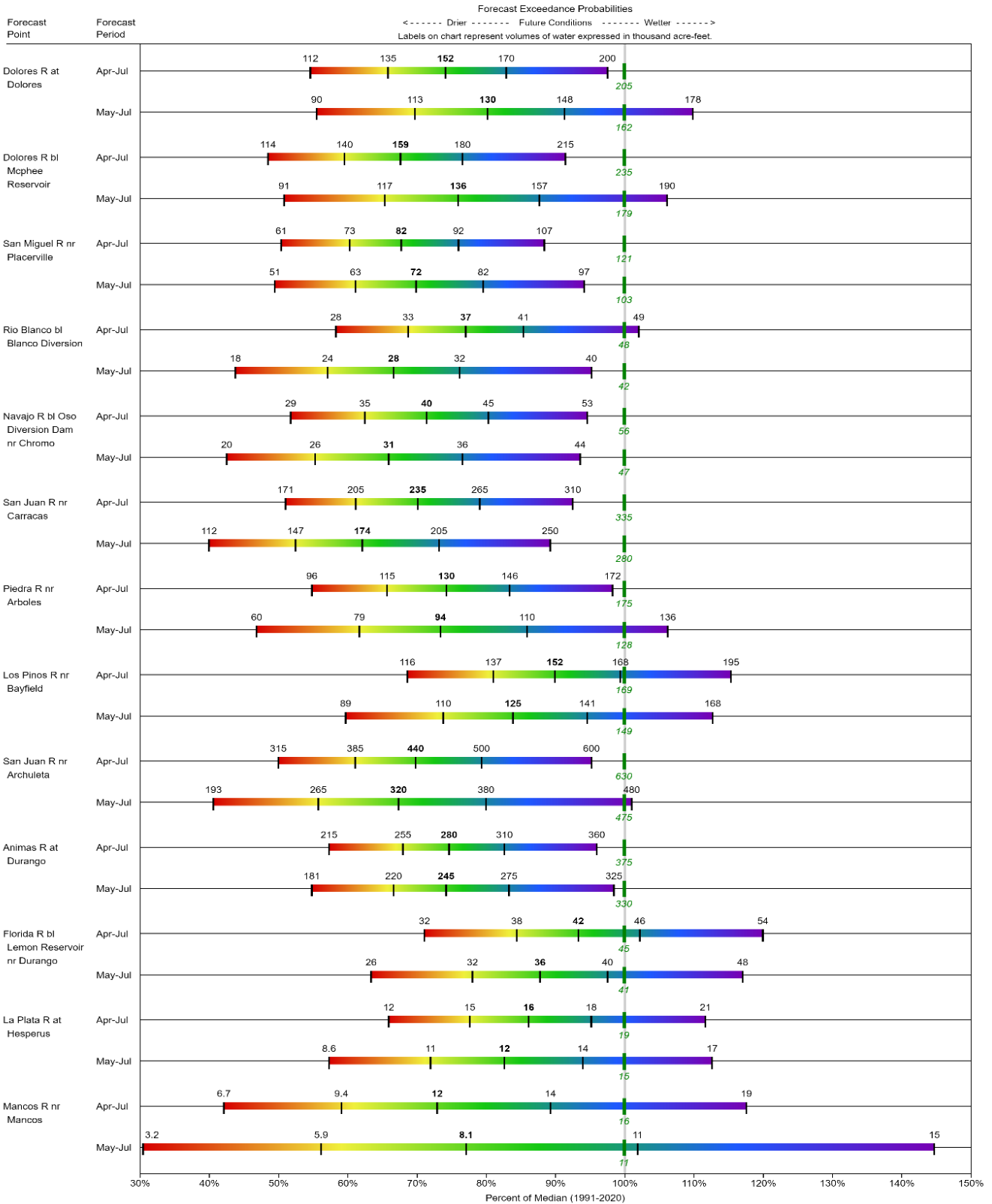
	# of Sites	% Median	Last Year % Median
Animas	9.0	75.0	157.0
Upper San Juan	6.0	73.7	167.2
San Miguel	6.0	67.6	231.4
Dolores	4.0	81.2	259.4
Mancos-La Plata	3.0	88.1	214.9

Reservoir Storage End of April 2024

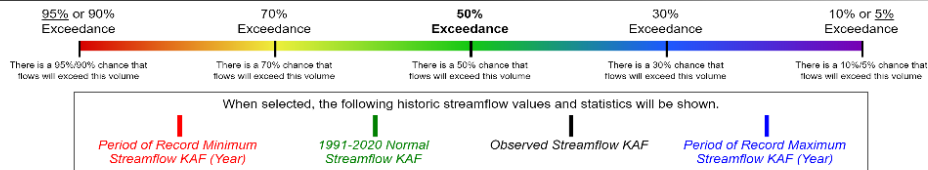
San Miguel-Dolores-Animas-San Juan Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Trout Lake Reservoir	2.27	1.93	1.53	148.4
Jackson Gulch Reservoir	6.75	8.15	7.6	88.8
Groundhog Reservoir	15.35	5.31	16.4	93.6
Mcphee Reservoir	300.07	325.73	324.3	92.5
Navajo Reservoir	1108.35	1123.74	1393.0	79.6
Lemon Reservoir	21.44	13.23	22.4	95.7
Vallecito Reservoir	91.77	36.48	85.7	107.1

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN
Water Supply Forecasts
 May 1, 2024



Legend



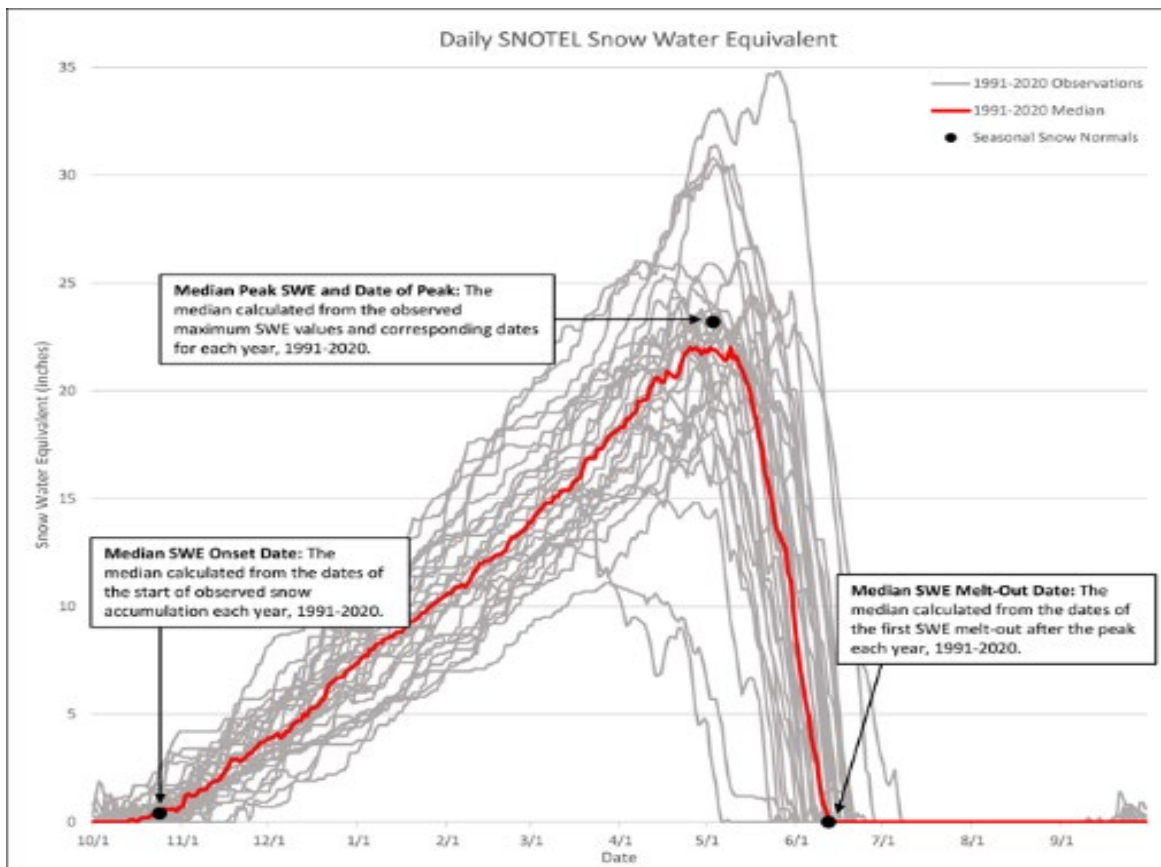
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

New 1991-2020 Statistical Normals

The NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program recently published new statistical normals (medians or averages) to describe the central tendency of a data record over a 30-year period. Data normals are key in helping water users compare current conditions to past conditions using the metric “% of normal.” Every 10 years, the SSWSF Program updates the 30-year normals reference period to stay consistent with World Meteorological Organization standards that account for changing climatic conditions over time. As such, this year the SSWSF Program transitioned from using 1981-2010 data normals to using 1991-2020 data normals.

For the 1991-2020 reference period, the median is the official NRCS normal when conveying information about current snowpack, precipitation, and water supply conditions. The median was previously used as the official 1981-2010 normal for SWE and some streamflow forecast points, but the average was used for other data types. Setting the official normal to the median provides consistency across data types and stations. Viewing the 30-year average December be preferable over the median in some instances, therefore, both the average and the median are available in most NRCS reports and products. See Median vs. Average for more information about the median.

A new suite of statistics for automated snow monitoring stations are available to provide information about normal seasonal snowpack characteristics. These new seasonal statistics include medians and averages for the SWE onset date and melt-out date, as well as the median and average maximum seasonal SWE value (Peak SWE) and date of Peak SWE. More detailed information on the updated normals can be found on the Water and Climate Center’s [30-year normals page](#).



How to Read Snowpack Graphs

The graphs show snow water equivalent (SWE) (in inches), using daily SNOTEL data. for the October 1 through September 30 water year. Basin “observed” SWE values are computed using SNOTEL sites which are characteristic of the snowpack of the particular basin.

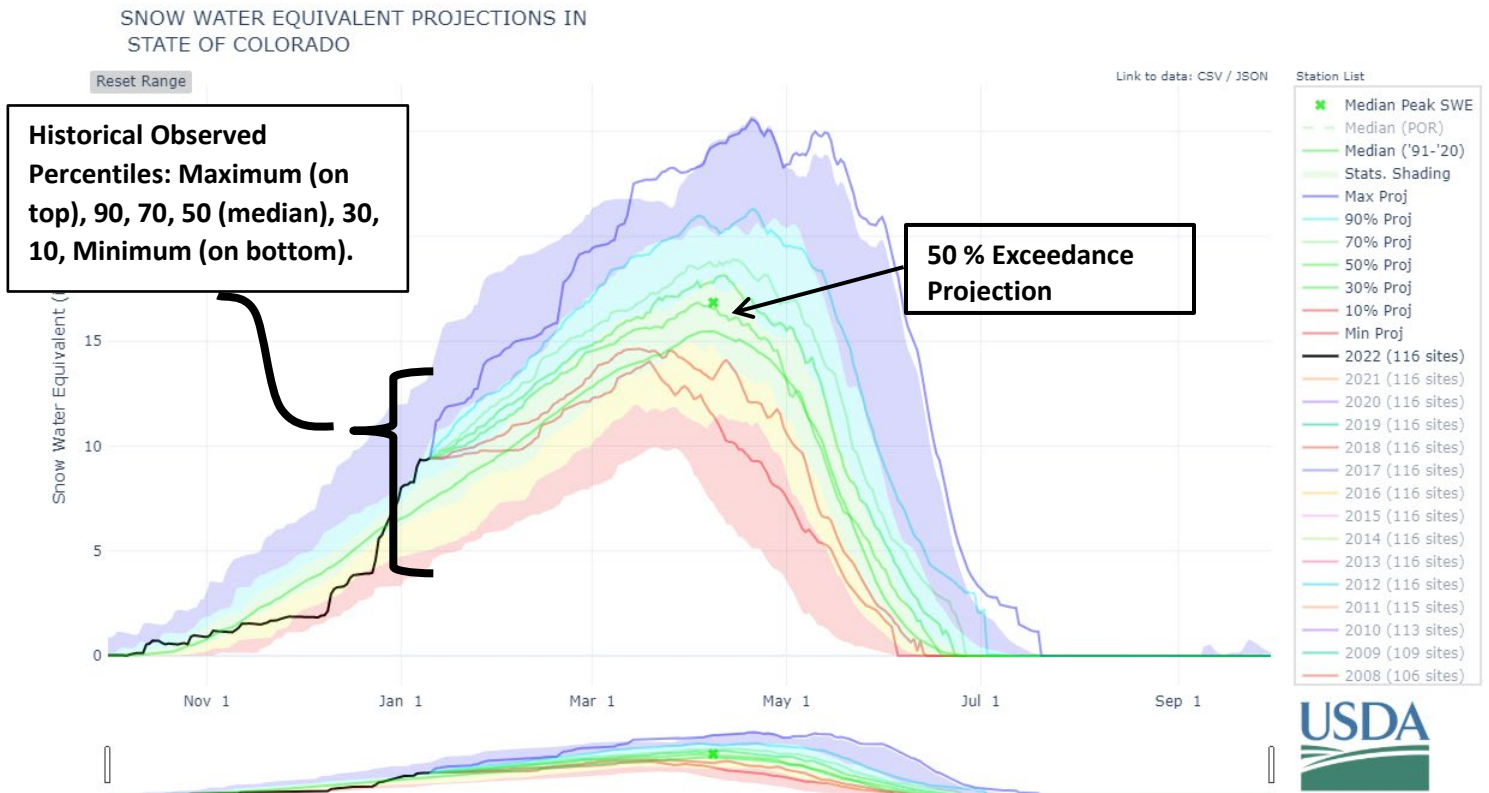
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

Historical observed percentile range is shown as a gray background area on the graph. Shades of gray indicate maximum, 90 percentile, 70 percentile, 50 percentile (solid black line), 30 percentile, 10 percentile, and minimum for the period of record.

50 % Exceedance Projection: The most probabilistic snowpack projection, based on the median snowpack is projected forward from the end of the current period to the end of the current water year.

For more detailed information on these graphs visit:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_062291.pdf



How Forecasts Are Made

For more water supply and resource management information, contact:

Brian Domonkos

Snow Survey Supervisor

USDA, Natural Resources Conservation Service

Denver Federal Center, Bldg 56, Rm 2604

PO Box 25426

Denver, CO 80225-0426

Phone (720) 544-2852

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/co/snow/>

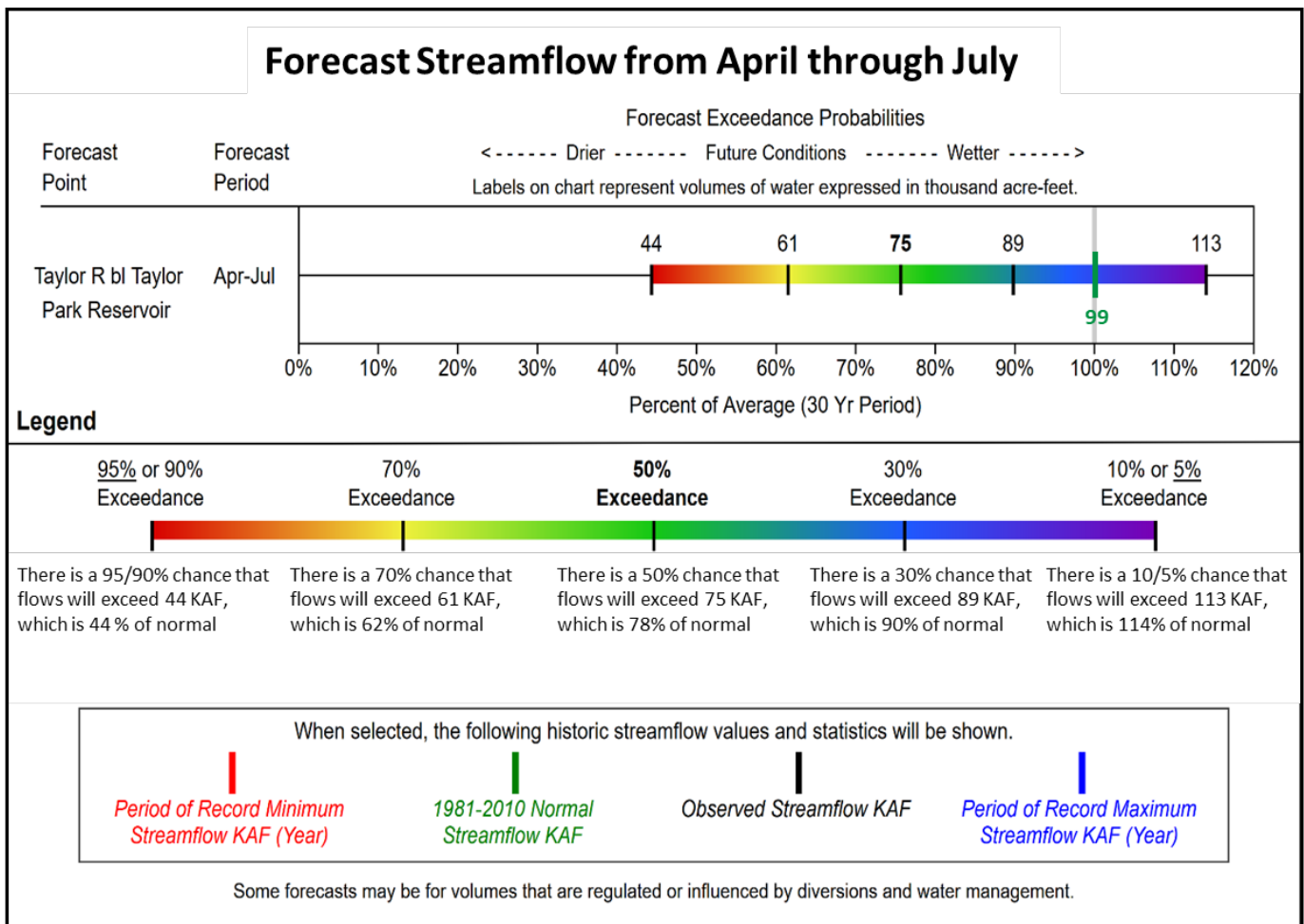
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they December want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they December want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Interpreting the Forecast Graphics

These graphics provide a new way to visualize the range of streamflows represented by the forecast exceedance probabilities for each forecast period. The colors in the bar for each forecast point indicate the exceedance probability of the forecasts and the vertical lines on the bar signify the five published forecast exceedance probabilities. The numbers displayed above the color scale represent the actual forecasted streamflow volume (in KAF) for the given exceedance probability. The horizontal axis provides the percent of median represented by each forecast and the gray line centered above 100% represents the 1981-2010 historical median streamflow. The position of the gray line relative to the color scale provides a benchmark for considering future streamflows. If the majority of the forecast range is to the right of the gray line, there is a higher likelihood of above median streamflow volumes during the provided forecast period. Conversely, if the majority of the color bar is to the left of the median mark, below median volumes are more likely. The horizontal span of the forecasts offers an indication of the uncertainty in a given forecast: when the bar spans a large horizontal range, the forecast skill is low and uncertainty is high; when the bar is narrow in width, the forecast skill is higher and uncertainty lower.





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In addition to the water supply outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, February through June. The information December be obtained from the Natural Resources Conservation Service web page at <http://www.wcc.nrcs.usda.gov/wsf/westwide.html>

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Colorado

Water Supply Outlook Report

Natural Resources Conservation Service
Lakewood, CO